



**TAMPERE UNIVERSITY OF TECHNOLOGY**  
Degree Program in Business and Technology

**MANUEL VELÁZQUEZ VEGA**

**CROWDSOURCING EXPERTISE TO ENHANCE PARTNERS'  
COLLABORATION IN WORLD CLASS INNOVATIONS**

Master of Science Thesis

Prof. Saku Mäkinen and Assoc. Prof. Marko Seppänen have been appointed as the examiners at the Council Meeting of the Faculty of Business and Built Environment on the October 3<sup>rd</sup>, 2011.

## ABSTRACT

**Title:** Crowdsourcing expertise to enhance partners' collaboration in world class innovations.

**Author:** Velázquez Vega, Manuel

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**Abstract:** The objective of this thesis was to apply theory related with crowdsourcing in order to find expertise with the purpose of enhancing partners' collaboration in world-class innovations. The target was to identify ways of managing knowledge intensive activities with a boundariless-IT scope in order to get value from masses. Also to explore how the knowledge of the general market could be used to increase profitability and chances of adoption of new technologies. The objective of the thesis was approached down up from theoretical-background, empirical enquiries with people related to a NGO-activities, and two web-based mechanisms for knowledge management. The literature review helped to identify how crowdsourcing is being used currently, what the development processes of crowdsourcing mechanisms are, as well as the challenges and success factors related with crowdsourcing. Qualitative interviews with stakeholders related with two projects of the targeted NGO were carried out in order to understand how crowdsourcing could bolster innovation and enhance partners' collaboration regardless having country-borders between participants, and all in all the implications of this rather un-explored fact. After the interviews, a wiki and a web-based community were developed at the structural-level with the help of external IT-support in order to gather participation in a crowdsourced-fashion.

After literature review, qualitative inquiries and experiments related with this study, some results can be shared. Regarding the literature review it is possible to say that in order to crowdsource, the need has to be well understood first and well transmitted after. Some needs intended to be crowdsourced might require a lower level of expertise as matters of general interest, while some may require just a simple mouse-click, other needs may require more active participation, and some others a blend of both. In the case of needs that require high-level of expertise a well established community is a must in order to support the crowd-interactions. Also from literature review it is possible to say that some of the success factors that have been identified are relevant when trying to get results in practice, especially when it comes of having a clear goal and keeping things as simple as possible. From the qualitative-interviews it was possible to see conflicting approaches about information management. It seems that certain issues

related with matters of particular-interests still want to be kept near the chest and reluctance to share information online seems to be present; but at the same time it is accepted that more openness is needed in development-processes in order to create more value. Also the wide availability of managerial tools to handle innovation-processes online, that are not available for the masses, increases the complexity to include crowd contributions and unify a single-notion. When it comes to the design, deployment, and the use of online-tools the literature provides limited guidance to the extent of supporting discretionary managerial approaches with rules of thumbs for development paths and decision making. When it comes to the implementation phase, many ideas to be developed are difficult to get through, even to communicate and as a result, the implementation-phase might get tough before adoption.

The rationale behind crowds do not follow a path of charity, if it is intended to receive support from online-crowds it is necessary to either have an interesting project or an interesting reward; if possible better both. A well motivated steering-community closely related with the outcome of the project is a must in order to conduct the crowd. The success of crowd-ventures is also strongly related with persistence, professionalism, monitoring of key performance indicators, split of data and metadata, team built up capacity, resources-availability and the ability to present information coherently. As a result this study presents further details about some of the success factors, risks and limitations to be considered for institutions aiming to manage open-audience contributions.

## PREFACE

Thank you to those that can speak their mind openly. Thank you to all that have no other ambition, but the ambition of having a better day today.

Special thanks to my thesis supervisor Marko Seppänen from Tampere University of Technology, thank you for the guidance and practical-hints when starting and finishing this thesis. Thank you to Esa Kokkonen from Baltic Institute of Finland for opening me the doors of the organization he leads, the motivation, introduction to his team and all the support. A crowd-sized thank you all to those members that joined the online-community and actively-contributed with their comments and critic to the present document. Thank you to the government of Veracruz Mexico that supported me with a scholarship to pursue my studies in TUT-Finland. Also thank you to my mother, father and sisters that have always supported me with their honesty and affection.

The idea behind this thesis perhaps was a little bit too wild. During my studies I got rather excited about what is happening around open-source, online-communities and how information-sharing is able to activate collaboration out of the virtual-world. It is clear that people have to get paid for their job, and if you are good at something there is no reason to do it for free. Yet there are still plenty of cases, perhaps a small minority, which is ready to share and collaborate for the sake of science. So in my opinion there is still hope! I still think that the thesis itself could have been entirely-crowdsourced, if I would have only managed to be a bit more committed with the online-community and pull collaboration from people already immerse in the subject. I did contact some of the authors I read but there was zero response and not much insistence from my side. It sounds easy but being a community-moderator is a full time job.

At the beginning the idea was rather simple: to invite people to either shape concepts/ideas around the thesis work, even correct the grammar or become moderators in the web-page. This did not go as expected even though the subject has been well widespread and other pilot projects have been tested in the past, like project ZERO with similar characteristics and also little success. One fact is, that to get to know the basis of the subject requires a lot of research and despite the fact that the project offered detailed guidelines and even a monetary reward little attention could be brought.

Tampere, 30.JUNE.2013

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Manuel Velazquez Vega

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## ABBREVIATIONS AND NOTATION

<b>Amazon</b>	Internet service company providing among other things hosting services.
<b>back-end</b>	In web-pages is the area where administration takes place.
<b>BETA</b>	Nearly complete prototype of a product.
<b>BIF</b>	Baltic Institute of Finland.
<b>BSR InnoShip</b>	Baltic Sea Region Innovation for Sea Transportation.
<b>click-worker</b>	A worker hired to perform basic-tasks requiring only common sense in identifying patterns in internet by clicking the mouse.
<b>coopertition</b>	Neologism of cooperative competition.
<b>CV</b>	Curriculum vitae.
<b>Facebook</b>	Online social-network supplier.
<b>freelance</b>	A person who pursues a profession without any long-term commitment to any employer.
<b>Freelancer</b>	Global online outsourcing-market place for digital-content related jobs.
<b>front-end</b>	Interface between web-users and back-end.
<b>Godaddy</b>	Internet service company primarily offering web-hosting and domain registration.
<b>Google</b>	Internet service multinational offering search-engine services, cloud computation, software development and online-advertising.
<b>IT</b>	Information technology.
<b>intranet</b>	Access restricted network operating in the same way than the world wide web.
<b>KPIs</b>	Key performance indicators.
<b>LinkedIn</b>	Social network website focused in professional occupations.
<b>MySQL</b>	Relational database management system for multi-user purposes.
<b>Moodle</b>	Acronym for Modular Object-Oriented Dynamic Learning Environment. Is an e-learning software platform
<b>NGO</b>	Non-governmental organization.
<b>puhu minulle suomea</b>	Campaign part of WPP that encourage state-workers to speak Finnish to foreigners. Translated from Finnish means “speak Finnish to me”.
<b>Q&amp;A</b>	Questions and answers rounds for project development.

<b>reCAPCHA</b>	Optical character recognition for human authentication. Also used to digitalize text books.
<b>R&amp;D</b>	Research and Development.
<b>Skype</b>	Software application that translates voice over internet protocols in order to have computer phone-calls.
<b>TeamViewer</b>	Software that allows remote control, desktop sharing, and file transfers in real time.
<b>Think-tank</b>	Organizations doing research for regional development, mostly in social policy and environmental matters.
<b>TUT</b>	Tampere University of Technology also known as TTY from its letters in Finnish language Tampereen teknillinen yliopisto
<b>Twitter</b>	Social network service to share messages in the internet up to 140 characters.
<b>URL</b>	Uniform resource locator, also known as a web-address.
<b>wiki</b>	Online repository of information displayed in an editable-for-everyone webpage that keeps a tracking record of any modification
<b>Wikipedia</b>	Collaboratively edited encyclopedia using wiki technology.
<b>WPP</b>	Work Place Pirkanmaa. Pirkanmaa is the second largest province in Finland.



# 1. INTRODUCTION

The expansion of information-technologies have enabled and empowered an overeducated middle-class to serve and profit the needs of the majorities (Howe 2009). Even though information-technologies have been able to provide a greater scope for diversification, the trend seems to be going towards a more integrated and monitored online-network. This integration provides, in today's network, alternative-ways to identify and validate sources of information. Furthermore, network-integration has raised schemes able not only to identify resources for specific needs but also to continuously-upgrade and train human-resources in accordance with specific needs. Yet, one of the things that seem to remain challenging is how to lead online-interactions among different parties, and effectively organize online-collaboration (Antikainen 2011). Internet users in general or "netizens" as coined by Young (2011), are the major source from which crowdsourcing-practices are aiming to find/develop expertise through online-collaboration.

## 1.1 Background

This thesis considers theory from previous studies related with open-innovation, online-communities, crowdsourcing, and in a smaller extent with pyramiding as an alternative way of recognizing expertise to boost world class innovations. Also contributions from an online-community created for the purpose of this thesis are presented. This thesis shares most relevant experiences obtained during the creation and cultivation of an online-community. In addition the present thesis has been written in collaboration with the Baltic Institute of Finland from which two cases were taken in order to explore areas of opportunity and figure out how to get contributions from online-crowds in global basis.

Many ideas around the concept of crowdsourcing revolve at a wider range, over ideas regarding online-communities and open-innovation. For instance crowdsourcing could be seen as the result of a very successful online-community which is the foundation of an online-crowd. Open-innovation can help to understand the business implications of crowdsourcing; how crowdsourcing could serve to understand or even create needs, source solutions, validate findings, compliment results and/or boost capabilities of specific business-ventures. All this as a result of receiving external-contributions from an open development-process; from start-ups to movie-films, traffic-jams or brand-designing, books-translations or public-bookkeeping; among other things

which are not limited to digital-content providers but go as far as capital investment for physical-infrastructure.

## 1.2 Objective

This thesis focuses on current theory regarding crowdsourcing-practices. In order to study the implications of crowdsourcing practices, and also with the attempt of getting contributions in a crowdsourced-fashion, the development of a tailor made online-community was brought into practice. The development of an online-community requires a relatively low initial-investment but on the other hand requires the ability to build a network strongly related and motivated with the objective of determined project. In this study an online-community should be seen as the virtual meeting-room where people motivated enough get together to achieve the objective of a determined project. The objective of this thesis is . . .

. . . to find expertise by applying crowdsourcing theory in order to enhance partners' collaboration in world-class innovations.

Application of theory is important in order to realize whether the theory works or not. In other words, it is important to verify if theory goes in hand to what it happens in reality as theory and in general ideas look for the tools and the means that enables them to happen. As it can happen that a tool might have not been available when theory was written and also that many ideas are not meant to happen. Yet, in the particular case of the ideas around crowdsourcing many of the matters under discussion in the literature are mostly focused in the "form" and little is said about the "way" and how this is related with the "goal" of a crowdsourcing-venture. For instance when spotting expertise this can be seen as a quest when trying to find current-expertise, but it can also be a process when trying to create or boost new-expertise. Either quest or process, the current competitive landscape keeps demanding expertise and specialization from different areas that are able to work together in order to create a greater value.

The benefits of crowdsourcing are there for all those who want to participate and engage in a particular venture with the help of internet. With the current state of information-technology crowdsourcing is enabled to happen at a global-scale, and knowledge-intensive workers more than ever are not only limited within their economical frontiers; but boosted with funding and transactions that can go from one continent to another. Today is possible to make a call for participation and get response from all around the globe, increasing the scale and pushing further the competitive landscape. The benefits of crowdsourcing are there for everyone up to go and truly

engage in an enterprise and compete globally; if the level is amateur, at least is possible to practice and compare results; if the participants are at the expert level they can join a community focused in implementation. In general-terms the benefits of crowdsourcing go to people able to engage enough in order to understand and communicate a common-venture through reasoning and collaboration.

### **1.3 Research Methodology**

According to Gummesson (1993) there are two main data researching scopes. The first one is “secondary research” which relies mainly on information that has been already processed by someone else. The second scope is “primary research” that depends on first-hand information. Secondary sources of information have the disadvantage that they have been gathered, processed and produced under or for someone else’s purposes. This brings-up reliability issues conflicting with the purpose of a different project-objective. Moreover it is hard to verify the way these secondary-sources of information have been created, or simply the information might be old enough not to be representative. This does not mean that secondary sources of information cannot serve as a starting point of a particular research, but it does mean that the information should be taken with a pinch of salt.

There are two kinds of data collection methods, quantitative methods and qualitative methods which most of the times complement each other when aiming to understand a phenomenon. Quantitative methods are numbers and statistic oriented, whereas qualitative methods could include body language or even subjective interpretations based on personal-taste. With qualitative-research the main disadvantage is that it is hard to get the same outcome if repetition is intended. Qualitative primary research is more like a snapshot of an unrepeatable actual situation. In this sense it is possible to say that, given the inherent state of motion and constant change of any substance, it is simply impossible to asses a current issue with previous approaches. Therefore primary research to generate qualitative data relies on the capacity of induction, synthesis, and deduction a researcher can have on that particular point of time. In other words, the capacity a researcher has of getting insight. Also primary research can be hard to get in terms of opportunities and resources needed in order to get close to the source of information. The qualitative research methods proposed by Gummesson (1993; 2000) are:

1. Use of existing material.
2. Questionnaire surveys.
3. Qualitative interviews.

4. Observation.
5. Action Science.

Existing materials are the base of secondary research. The other four methods support the generation of first-hand information which, if documented in a systematic way, can become secondary sources of information for future research. Primary research and secondary research should be seen as complements of each other to validate conclusions from past-theories and present-facts. Researchers should try to get a balance of both scopes by allowing flexibility in theories and adjust them to real-life information before bending facts to fit theories.

As mentioned before, the thesis gives an academic-contribution based on literature review; but for a down to earth contribution without missing sight of an academic perspective, it was decided to find an established-organization in order try to figure out how theory could be applied in practice to their current operations. A number of face to face interviews with people involved with two of the ongoing projects were carried out, followed by the built-up and cultivation of an online-community. The insight obtained from this empirical-research has been added on the top of previous existing sources of information in order to provide a balanced-mix between a practical and an academic contribution. The dynamic comparison of both information sources is used to obtain an abductive-research (Coffey & Atkinson 1996), while allowing enaction to creation an interface that helped to understand a constantly changing-subject in order to test and compare practices based in previous theoretical-background against present-facts. This research methodology is especially useful when a subject is particularly elusive and different areas of expertise are required to create added-value synergies and make new findings.

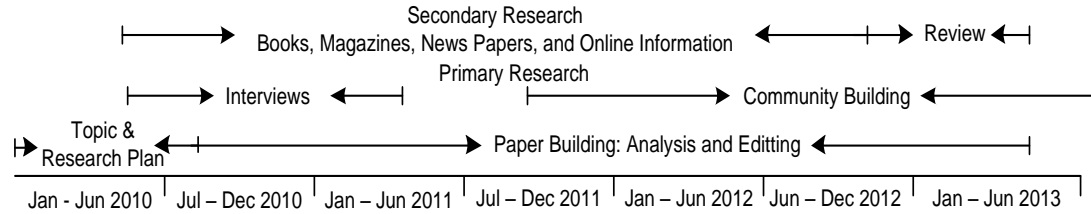
In this thesis the integration of business and technological views were a major stake. From the technological side the pre-understanding of practices to develop dynamic-websites was a basic starting-point, and it was developed further during the elaboration of this thesis work. The lack of expertise in the information-technology area and, in general for all matters, the un-ability of being an expert in everything, demands and furthermore pushes collaboration with people that are expert(s) in different areas. In this case expert-collaboration took place through an online-intermediary of human-resources relevant to information technologies (Appendix 1 – Freelancer call). The little pre-understating of the technical-requirements needed to develop web-tools helped to avoid blockages to first-hand information, and forced search and collaboration with external IT-experts. Access to web-developers took place through an intermediary-site called [www.freelancers.com](http://www.freelancers.com) that, while this thesis was written, gathers a community of IT-experts in different areas.

Face to face interviews with people collaborating in the two projects from the Baltic Institute of Finland took place and the knowledge obtained from them has been included in the present document. These two projects were chosen because of their international and technological intensive scope. The results are presented in the practical-contribution of this thesis under the name of the two projects: WorkPlace-Pirkanmaa and BSR-InnoShip. Because of resources' limitations to carry out this study and the interest of practicing the face to face setting for gathering information, the research targeted partners only located in Tampere-region with the exception of project-manager of BSR-InnoShip based on Helsinki. Table 1 summarizes the people that very attentively and kindly took some of their time to have face-to-face interviews and expressed their thoughts regarding this thesis' subjects and projects from BIF. Interview guide is available in Appendix 2.

*Table 1 Primary Research (Face to Face Interviews)*

<b>Title</b>	<b>Director</b>	<b>Project Manager</b>	<b>Project Manager</b>	<b>International Coordinator</b>
Interviewed Venue Project	April 14 <sup>th</sup> 2011 BIF - Tampere WPP - BSR	April 15 <sup>th</sup> 2011 BIF - Tampere WPP	April 21 <sup>st</sup> 2011 BIF - Helsinki BSR InnoShip	April 27 <sup>th</sup> 2011 TUT WPP
	<b>Project Coordinator</b> April 29 <sup>th</sup> 2011 TREDEA WPP	<b>Regional Manager</b> May 3 <sup>rd</sup> 2011 EK - Tampere WPP	<b>Immigration Coordinator</b> May 6 <sup>th</sup> 2011 City of Tampere WPP	<b>Development Director</b> May 9 <sup>th</sup> 2011 UTA WPP

In the case of BSR-Innoship it was only possible to interview the project manager and, even though the insistence, no further collaboration to this thesis-work came. Most of the interviews were related with WPP. Both cases worked in steering-committee basis which were heavily involved to government related agencies, universities and private-sector. In both cases projects served as joint-point where all lines related to the project merged. In addition to the literature review and traditional empirical-research methods, the thesis has tried to include contributions from people involved and interested in the subject of the thesis itself. These contributions have been gathered through an online-community which attempted to become a community of people involved in crowdsourcing-practices. Figure 1 summarizes the different phases of the researching process.



*Figure 1. Research Process Timeline.*

Related with the construction-tasks required to come up with the present thesis-work, planning and figuring out the research-goal were the most challenging ones. This is worth mention because the motivation of studying crowdsourcing came from two other previous studies related with software-development and open-innovation (Velazquez 2010, 2011). Most of the action science came during the built-up and cultivation of the online-community. Documentation related with software development was reviewed at the same time the enquiries were placed in the HR-Intermediary (freelancer.com). Experiences from the selection process, interactions, promotion and the different stages of the website development are compared with the revised-theory and explained in the practical-contribution of the thesis. Different revisions of the website development are available in Appendix 3. After completion of academic-contribution findings were shared on the online-community and promoted in other communities related with crowdsourcing for further comments (Appendix 4). It was decided that the online-community would receive comments from identifiable-sources and this is why a registration process was implemented and filtered with a questionnaire at the beginning of the registration process (Appendix 5) in order to avoid malicious activity. Input from registration-questionnaire is also included in this thesis.

## **1.4 Limitations and structure of the thesis**

Innovations that require the participation of private-companies, governments, and universities could be enhanced and improved by including open-audience contributions. The thesis makes a literature review, and then intends to apply some of this theory in practice, based in real cases, in order to give recommendations to an NGO for regional development. The following chapter explains the relevance of open-innovation and online-communities over crowdsourcing, and how pyramiding could complement it. This chapter also introduces pyramiding as an approach for finding experts as a self contained learning process to later-on go deeper over online-collaboration and share some of the current practices around wikis. The last part of chapter two presents some of the drivers that motivate people to collaborate in an online-community, some identified practices for implementation and considerations over the life-time of a community.

Third chapter describes operations of the Baltic Institute of Finland as well as goal and general frame-work of two selected cases from this NGO. Main aim of practical contribution is to provide a series of tested ideas that come from the literature review in chapter two. The two cases reviewed in collaboration with the Baltic Institute of Finland and the running of a website aiming to create an online-community, are taken as a base to apply and understand how theory could be applied in practice. Most of the efforts around the web-tools are described in chapter four. The experience from this web-development is also taken as an insight-base in order to understand challenges and advantages when a project intends to get online-contributions. The first recommendation is at the technical level regarding the build-up of online-interfaces aiming to get crowdsourced contributions, including findings regarding functionality at the technical level, how to monitor performance and enhance online-offering. Architecture description and some functionalities of an online interface that could enhance global collaboration are also presented in chapter four. Also managerial-recommendations are shared in order to find/create experts/partners for world-class innovation-projects. Second recommendation includes some practices considered as relevant to manage/cultivate online-collaboration in order to increase participation of experts and involve partners that could boost innovation processes. The presented practices intend to stimulate coopertition, partnership, and integration towards collaboration in common-projects. All recommendations have taken into consideration BIF's managerial-processes and its particular structure as a non-for-profit organization procuring regional development.

More specifically speaking the thesis intends to give an academic-contribution and a practical-contribution. The academic contribution is covered by a theoretical background. The first subchapter of the theoretical background presents some views of current literature regarding online-communities, open-innovation and crowdsourcing in order to clarify the general concepts approached in this thesis work. Subchapter 2.2 together with crowdsourcing presents pyramiding as an alternative way of finding expertise. 2.3 goes deeper into the importance of creating partnership for collaboration in global innovations, and some of the implications when approached in online-setups illustrating wikis. Subchapter 2.4 makes a summary of do's that have been recognized from reviewed literature in order to increase the chances at successfully implementing crowdsourcing.

The practical-contribution is based on a study case with the NGO focus in economical and technological development in the Baltic region. Chapter 3 describes operations from the NGO, the two projects that were taken as a base for the practical contribution, and why crowdsourcing is relevant to its operations. The results of this

study are presented in chapter 4 where development process of online-community is reviewed and portrayed under two view-points, a business and a technical one. As well in chapter 4 are presented some relevant experiences obtained during deployment and cultivation of web-based tools. Chapter 4 shares some identified benefits and risks that projects, similar to the ones that have been studied from the NGO, may find when seeking contributions from online-crowds. Conclusions, summary, and limitations are presented in chapter 5.



## 2. THEORETICAL BACKGROUND

In this chapter current literature comes together in the areas of open innovation, online communities, crowdsourcing, and pyramiding. According with the literature review crowdsourcing could be seen as the result of a very successful online community from which is possible to get complementary advice regarding either existing or new ventures. Crowdsourcing could be complemented with ideas around online-communities, open-innovation and pyramiding to successfully enhance collaboration towards global-innovations.

### 2.1 Open Innovation, Online Communities, and CrowdSourcing

This subchapter presents some of the contributions that current literature shares regarding open innovation, online communities, and crowdsourcing. Open innovation could be seen as the target to which interactions occurring in online-communities head at before successful commercialization. Crowdsourcing is the result of well-coordinated interactions over an online-community that head towards commercialization and shaped offering. An open development process allows either active or passive participation; from which a venture can at least either advertise itself or induce economical actions in their favor. It is possible to find enough evidence in current literature to confirm that open-innovation, online-communities and crowdsourcing are strongly interrelated subjects.

#### 2.1.1 *Open Innovation*

The concepts of invention and innovation are mistakenly often used interchangeably. Since invention implies coming up with something new while it is the bringing an invention to life what makes an invention to an innovation (Gattorna 1977; Davila 2006). Invention is understood as something created for the very first time, meaning that it did not exist before, but in order to invent something new, we need to discover an ingredient or a different mix of ingredients that has not been considered before; in other words to “make a finding”. The ambiguity lies in the word “find”, so then to find is to invent when the experience of finding takes place for the very first time. In other words, an event without precedent whose novelty may be either the thing found (invented), or else the act and not the object of finding or discovering. In both cases (object or act), invention does not create an existence; therefore an invention is just a set of an existent stock of things in a given configuration (Waters & Godzich 1989). Hugh (1985) said that what is new about invention is the novelty of the

configuration – the way the elements are put together. As a result, invention involves fundamental ideas, and a novel combination of them. Realizing an invention may require considerable persistence (Byer 2004).

Rubenstein (1989) defines innovation as the process whereby new or improved products, processes, materials, and services are developed and transferred to places where they are appropriate. These definitions together imply a process of finding, developing, and realizing certain invention in accordance to someone else's needs for explicit trading purposes. Thus, innovation is the commercial success of an invention: positive return over investment. Gopalakrishnan and Damanpour (1997) identify three different types of innovations:

1. Products versus processes.
2. Radical versus incremental.
3. Technical versus administrative.

Technical innovations are those who have a direct value added in the final offering of a product (good or service) whereas administrative are related to ways to enhance the internal efficiency of an organization which may include technological innovations. Radical innovations, also called disruptive innovations, happen when products, processes, practices, and even current concepts are substituted by new ones. A radical innovation is also the starting and ending point of any incremental innovation. Incremental innovations, or continuous innovations, are when innovations are gradually enhanced with small improvements (White et al. 2007). Figure 2 illustrates incremental-innovation on the left and the disruptive case of innovation on the right. Both cases lean on a time frame and imply a successful commercialization phase to be able to advance in their performance.

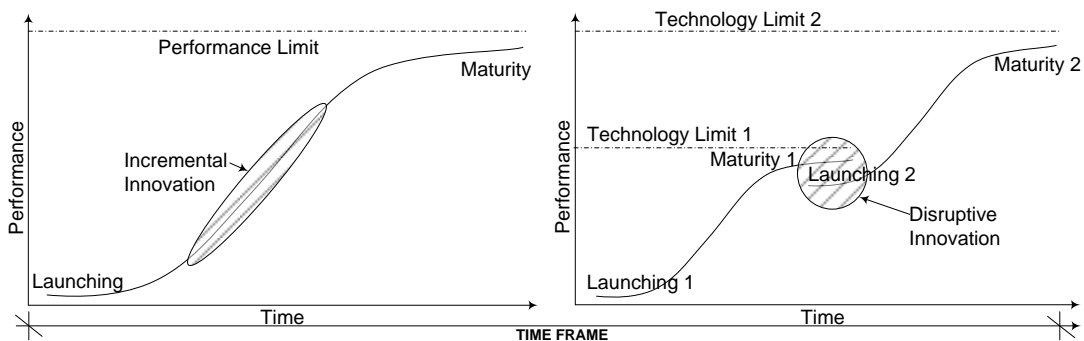


Figure 2. Technology Life Cycle (Foster 1986).

The idea behind open innovation is that companies can work as semi-permeable membranes in order to embrace external-contributions and combine these contributions with their internal-competences in order to find business opportunities (Chesbrough 2008) and increase the chances of commercial success. In other words, open innovation aims at avoiding technological and market uncertainties (Chesbrough 2003; 2008). Figure 3 illustrates the open innovation scheme where R&D and commercialization of an idea can be carried out in collaboration with external entities while the company internalizes, incorporates, and shares outflows based on environmental-hints and internal-competences.

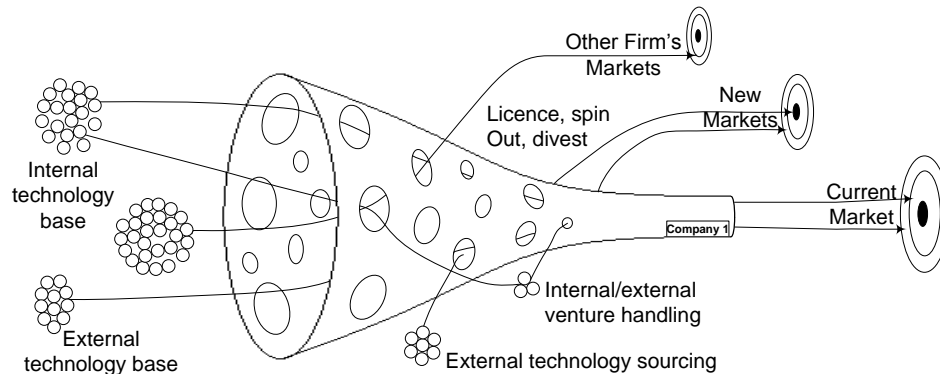


Figure 3. Open Innovation (Chesbrough 2008; SCA).

Open innovation endorses collaboration towards specific goals and mission oriented activities to demonstrate project commercialization (Chesbrough 2008; Curtis et al. 2006) either for current or new markets. Additionally, open innovation takes in consideration the capabilities of external potential network partners to craft an innovation. The development of an innovation under participation of external parties with free knowledge exchange requires risk management practices (Dixon 2009). It is important to realize the implications of disclosing information, as it is difficult to enforce custody over it (Braman 1989; Newell et al. 2002). It is also relevant to consider the fact that information needs to be processed and validated (Alvesson 2004).

### 2.1.2 Online Communities

In most cases communities are seen as means for improvement (Appendix 6). Community is a source of collective-knowledge with the contribution of its participants, also called collective-intelligence (Wang et al. 2006). Community knowledge building is the knowledge derived from members' interactions in a community (Lambropoulos 2006). In order to facilitate these interactions, networking is needed to support the

efforts of any community (Khine 2003). One of the things that seem to remain challenging is to find a way to effectively organize online-collaboration (Antikainen 2011). The constant growth of communities in some areas has shown the need of designing tools to manage them as current staff levels cannot meet users' demands (Panel on Neutron Research 2007). This growth has created positions like "data managers" who incorporate feedback from users into data packages and provide data sets to tackle more directly the development, re-analysis, and research of a community (National Research Council 1995; Committee on Climate Data Records 2004). Communities, despite the relatively ephemeral nature of their interactions, may bring relevant and useful information for a determined subject. Straight managerial practices for communities that depend on bottom-up involvement are rather difficult to be applied as their success depends on individuals' commitment (Newell et al. 2002; Alvesson 2004). As such, communities are not manageable but rather cultivable, meaning that communities require a moderator instead of a manager or an authoritative figure (Rein et al. 2007). Down-up communities, in the same manner as up-down communities, require direction and administration to link outflows in order to obtain an efficient development (Hippel 2002). In both cases, community administration only supports, integrates, and communicates everybody's opinions (Tzu 2004). The reliability and trustworthy-image of a community can be strengthened with the participation of easy to recognize entities like universities, government-agencies and companies. Table 2 includes some characteristics of successful communities.

Table 2. *Characteristics of Successful Communities (Molm et al. 2000; McDermott 2002, 2004; Hess 2005; Sawhney 2000).*

	Hess	McDermott	Molm	Sawhney
Clear function		x		
Active participation of moderator(s)		x		
Critical mass of engaged members	x	x		
Accomplishment and Learning		x		x
High expectations		x		
Real time		x		
Trust	x	x	x	x
Reciprocity	x		x	
Altruism	x			
Passion and Motivation	x			x

Online refers to a state of connectivity with a telecommunication-system which is controlled and served by a computer (Merriam 2012; Oxford 2012). Online-communication has dramatically-widened the scope of communication and reduced to a certain extent the need of face to face communication. Still the paradigm of being able to communicate almost at no cost with people all around the world and the economic-

implications of this fact keep opening opportunities to share information for different purposes. In this sense an online-community can be seen as the public room where a group of people get virtually-connected to exchange something that is of their interest (Howe 2009). In order to build a community, network-cultivation and orientation for distributive-actions are needed in addition of having access to the technological-tools to tap the requirements of online-collaboration.

Online Communities life-cycles according with Howard (2010) are:

1. On board → value comes from maintainers.
2. Established → co-creation with maintainers and users.
3. Mature → value coming from users.
4. Mitosis → community split into smaller nodes.

The dynamics of collaboration should go in accordance to the nature of each project; sub-chapter three goes deeper into the arguments regarding collaboration. Regardless of the type of collaboration, the online-setup of communities is inherently boosted by the ability to organize information meaningfully and to communicate with the help of a central processing unit which uses the internet to augment availability and access to information in any location and at the power of a single click.

### *2.1.3 CrowdSourcing*

Crowd is defined as a large number of persons especially when collected together and having something in common (Webster-Merriam 2012). In regards to the number of people in a crowd Howe (2009) mentions that in current online-collaborations anything up to 5000 members can be considered a crowd, though it is not specified if these members are either just registered-members or active-members. It is important to highlight this register/active status because registration does not grant participation. Also it is relevant to consider the profile and characteristics of users as this can determine how many people would make it for a crowd. For instance a group of 100 qualified rocket-scientists could be considered already a crowd when 100 fans in a rock-concert could be seen as almost no people at all. In any crowd it is possible to find certain degree of diversity at the individual level and this diversity according with Surowiecki (2004) adds value if the right setup for crowd-interactions can be brought to life before the first user arrives.

Sourcing is the act of determining the source of certain required material (Merriam Webster 2012). Sourcing as strategic-decision implicates risks, benefits and inevitable tradeoffs; meaning that the decision of selecting one option automatically discards the

potential-benefits of having some other options. The benefits of sourcing according with Schmitz (2007) are highest profit with shorter lead times and inventories. Vollmann et al. (1997), Weele (2005) and Meriläinen (2005) agree in the benefits of sourcing for knowledge acquisition of new-technologies and products, control over bottle-necks, geographical-distribution and internationalization. In addition sourcing requires the alignment of internal competences with external sources with an integrative approach (Kaufmann 2000; Mol 2002). On the other hand there are risks on losing know-how and becoming dependant to a third party as sourcing with support to Ahoniemi et al. (2007) entails specialization in the need of competitiveness.

According with Howe (2009) crowdsourcing is the practice of sourcing needs, which are regularly covered by either an internal employee or an external contractor, to an undefined number of people by making an open call. The call must include description of the need to be covered, selection process, disclosing agreements and the rewards in return. The need can be covered either with an ultimate scientific challenge or with a tiny microtask - a simple mouse click. The selection-process can either come from the crowd itself or be in the hands of a previously-assembled steering-committee or a mix of these, whereas the disclosing-agreements and rewards can come in many different setups. Needs, selection, agreements and rewards can be flexible and be upgraded according with the results and lifetime of a determined venture. Crowdsourcing, like open innovation assumes that it is not possible to have the best mind, that an existent solution has to be out there, and seemingly to online-communities but in a greater extent, that collaborative-crowds can either complement core competences or become the market of the project's outcome.

Crowdsourcing can also be used to cover very specific needs that require high level of expertise in order to boost an innovation-process, which is also the main objective of doing pyramiding. The online-setup together with the visibility of the process allows tracking and discovering the most relevant participants. In an ongoing project, visibility and online-support allow spotting the participants answering the concerns of the collaboration, the ones interacting most with other members, and utterly the ones with most support. Crowd-collaborations can take place in many ways but there are two groundbreaking ones: conscious and unconscious collaboration. Unconscious collaboration takes place when the crowd is contributing to certain enterprise and not knowing it while getting benefits from other services or peripheral-products like reCAPCHA or puzzles in video games (Tsang 2013) just to mention two. The present thesis is interested in the conscious-form of interactions when users are aware where their contributions are heading at, in our particular case to enhance global collaboration for innovations and find/create expertise to support implementation.

Crowdsourcing could be seen as a venture of many in the quest of delivering solutions for either intrinsic or extrinsic motives. The later means that not all users are motivated by the same reason during a crowdsourcing-venture; therefore it should not be expected that neither contributions nor benefits to be uniform. The life-cycle of crowdsourcing together with the assumption that “an existing solution must be out-there” considers that a better solution can be achieved over time by educating and providing better tools to user-partners to either get to know the need or develop users’ skills. Also to a greater extent crowdsourcing could be seen as a source of group intelligence guided by the contributions of either sporadic or long-term users. The later is very much influenced by the set up of the collaboration that can occur as follows:

1. Open for everyone.
2. Affiliation under certain conditions.
3. A mix of the previous two.

The three previous bullets can be dynamic, depending on the life-time, project goals, and flexibility of the environment in which the venture is meant to happen. The environment refers to either the online setup or cybernetic medium where interactions are suppose to take place. The development and run up of a web-based environment requires a back-end and front-end display. In the back-end all the resources handling of the environment are concentrated, and in the front-end users contributions are displayed with support of the back-end. It is also possible to have different layers between back-end and front-end, for instance: for upgraded members or super-users enhanced-tools can become available, access to tutorials can be granted, as well as rights to re-configure the whole scope of the environment, even access to hardware and financial support. In chapter 4 these cases are extended.

Crowdsourcing supports Surowiecki’s (2004) notion that if a big and diverse enough group of people can be put together to ask them to “make decisions affecting matters of general interest” that group’s decisions will be, over time, “intellectually [superior] in comparison to isolated individuals,” no matter how smart or well-informed an isolated person is. This notion comes with the fact that experts in such group-activities could merge among other alternative experts as a result of repetitive interactions towards the same goal; meaning that engagement would potentially increase the ability of a single individual to show insight, make sense and guide actions of a crowdsourced-collaboration. In regards to the “expert” state of a person Howe (2009) says that people like people, not experts, and engagement in collaboration is more recognized.

## 2.2 Pyramiding and crowdsourcing expertise

This sub-chapter deepens in the concept of expertise. This sub-chapter also presents pyramiding as an alternative way to spot expertise. Pyramiding together with the ideas behind online-communities, open-innovation and crowdsourcing, provides a bigger picture to understand how to deal with external contributors in either the search of or creation of expertise in order to enhance collaboration towards innovations. Also some similitude between crowdsourcing and pyramiding are shown, highlighting how both practices could complement each-other.

### 2.2.1 *Expertise*

“Expert” can be either an adjective or a noun denoting special skills or knowledge coming from either training or experience (Merriam Webster 2013). The noun specifically refers to a person with these special skills and master knowledge in certain subject. From this definition it would be possible to say that it is only possible to be an expert of something that is measurable with means to either fulfill or surpass an expected result. When not measurable an outcome can be a matter of taste like in the case of arts, despite the fact that an artist can be expert in certain technique, what the artist crafts is a matter of taste. Nevertheless if an artist chooses to paint only horses for a long period of time, that painter could become an expert in horse-forms. The term “expert” comes from Latin “expertus”, pp. of experiri that means “to try, test” which in the noun sense is a “person wise through experience” (Etymonline 2013). Experience comes from “observation, experimentation, proof, [and] repeated trials” ending in someone able of repeating the same task and getting similar results. In philosophy “expertise” encompasses the “totality of the cognitions given by perception; all that is perceived, understood, and remembered”.

Practice and dedication are needed to reach the expert-state of a discipline. In addition expertise demands comparison, test and recognition. It is suggested that a total of 10 years of practice in certain domain would make it to an expert-level (Ericsson et al. 1994). If not tested, expertise gives room to chatterboxes. In order to claim expertise individuals have to be supervised and recognized by practitioners of similar or adjacent domains. Practitioners include peers, colleagues, competitors, and current or former customers. Other difficulties in the quest of expertise are finding accurate testing methods, recognition, and the means to either develop further or find the right places and conditions to exert the expertise itself. Here the idea of cooperative-competition, known as coopertition too, tackles very well all these previous matters (Neumann & Morgensten 2004) with potential to aggregate value with the final outcome.



Another way around it: it could be expected that an expert would be able to explain how to get something done. In online-communities it is possible to get a glimpse of users that might be able to reach an expert-status when they start explaining to other users how to do things better in the quest of expanding the boundaries of best current-performance. It is important to differentiate between expert-knowledge and expert-performance, meaning that being an expert does not automatically tell how to profit out of this fact. In other words experts might be unable to spot the right application where their expertise is worthy either alone or in combination with other expertise. On the other hand the expert term goes to the extent of being used as a jargon for marketing purposes. It is even possible that the expert itself might not be able to realize that he or she is an expert. Collaboration in this sense seems again a way to easily recognize expertise, in which collaboration should be seen as an undergoing-enterprise with people potentially able to get a benefit from the collaboration with either current or under-development experts. In this sense collaboration goes hand in hand with the idea of getting, if not creating, expertise. The knowledge conversion process thought by Nonaka (1995) goes in order with the philosophical trial of expertise which requires a medium, in our case a digital medium, not only to combine, but also to remember and compare previous results. Therefore expertise is only achieved by practicing, understanding, documenting, comparing and teaching as one of the easiest ways to improve skills. By learning something new and explaining it or teaching it back, perspective and depth of knowledge is gained by forcing the brain to think about the information in different ways in order to be transmitted. Taking into consideration the resources that are required to create an expert, together with the competitive landscape, a preferable option should be to source existing-expertise. A community-of-practice, described as a group of individuals willing to develop and share tacit and explicit knowledge (Coakes & Clarke 2006) complements the idea behind sharing-existing and creating-new expertise.

Even though it is not considered an academic contribution the message from Suzuki (1970) related with the potential genuity of amateur minds poses a contradictory statement in regards to the relevance of expertise in an innovation. In this sense experts can be highly conceptualized to innovate out of their fields of expertise and trouble shooters not necessarily need to be experts in specific fields to overcome difficulties and find ways to get the things done. Experts are usually more linked with radical innovations as well as researchers and entrepreneurs, whereas gradual innovations are rather linked with traders, well established companies, and end-users (Maidique 1980; Dodgson et al. 2008). Therefore, expert's or end-customer's conditions are not exclusive for innovation in any case (Root-Bernstein 1989), but rather complements. Consequently, an unspecialized perspective can provide as much value as an expert one. Nevertheless a pre-understanding with respect to the subject under review is required for

a shared mindset (Newell 2002; Alvesson 2004) and efficient use of a pre-established setup.

### *2.2.2 Pyramiding*

Pyramiding is a simple and relatively new concept. During literature review it was not possible to find more works related with pyramiding as explained by von Hippel et al. (2009) as a search-method in unconventional disciplines. Pyramiding is a compact term where most of current literature refers to financial-securities. The present thesis treats pyramiding as a method to find expertise by searching individuals that are already recognized within certain area of expertise in order to ask them “who knows more in that area than them”. In pyramiding after identifying the next-level expert it is intended to ask the same question to the next expert until people starts to point out the same person. Furthermore with pyramiding it might be possible to find adjacent-disciplines able to give a better performance of the field under research. In other words pyramiding is a way of searching for expertise with the help of practitioners in order to validate the expertise itself within analog-disciplines with incremental-chances of innovating. Pyramiding could also be seen as a systematic referral-process which targets people related in certain discipline in order to extent knowledge which might potentially lead to spotting disruptive-cases of innovation within a pre-established field.

The experiments of von Hippel et al. (2009) show that pyramiding-method is four times better to find “the expert” due to its linear-scalability and continuous-improvement in comparison with mass-screening which is based in parallelism demanding time-consuming analysis. Pyramiding is similar to snowball-sampling method (Welch, 1975) where people are asked about more people within a certain field, with the only difference that pyramiding focuses in either people with better understanding or greater proficiency. In other words pyramiding, unlike snowball-sampling, does not ask to recognize other people in the field, but to recognize the experts in the field. Other alternative uses of pyramiding are to find specific information-needs or alternative-applications of current technologies. Pyramiding-inquiry can evolve endlessly while different levels of expertise are reached. For instance after finding “the expert” other inquiries can be followed to either find valuable and applicable information of current knowledge or simply to reduce uncertainty in new markets which is a similar practice to what open-innovation does out of user-communities. Pyramiding in this sense is a self-contained learning-process which aims to improve knowledge during the course of data-collection, and directly makes networking. This suggest that interviews with lower levels of expertise help to understand better the issue under research, get different view-points in order to get better understanding from higher levels of expertise, and later findings can be shared among

interviewees-network for either validation or to complement or use the information. In this sense it is best to postpone interviews with the most recognized expert until more understanding of the matter is achieved. During pyramiding process the person in charge of the enquiry might end-up having best understanding of the matter not falling in the expert-performance but in the expert-knowledge.

It might seem obvious but when an inquiry is intended, observability and access should be considered. In the case of non-conventional areas it should be considered that there might be a prime on advertising the positive sides, and diminishing or hiding the negative attributes of the matter under research. Access can also be too expensive, and yet if access is achieved people might not know or might not be willing to share the knowledge. According with von Hippel et al. (2009) there are two aspects affecting the efficiency of pyramiding, one is respondent “tie strength” meaning how well known this person is by others, and “level of interest” which is how excited or motivated a person is towards certain subject. Tie-strength suggests that one person may know more about the level of expertise of other person with who is directly linked. Level-of-interest suggests that enthusiasts in the field may know more about best-performers. These two aspects might also fall in aspects related with marketing, propaganda and even activism. In other words it should be easier to identify people with rare expertise if many people know them, which subsequently subtracts the rareness of the subject while increasing awareness with the inquiry itself. This also means that starting an inquiry of “rare” subjects directly increases visibility and chances of adoption.

Before starting an inquiry it is advisable to check current literature in the matter under research in order to get the fundamentals and the names of people already involved in the field. Constant-development trends, vast availability of resources and resources’ constrains to analyze the entire-available resources by itself demand all together the need of having more than one expert. Most expert-population can be found through literature reviews, but access to these resources might be restrictive or be out of our time frame of execution; therefore pyramiding should work with clear death lines and realistic goals. All the same, crowdsourcing could boost and drive a pyramiding process with the leverage of people interested in a certain field. In the publishing sector these kinds of practices are becoming the rule in online-magazines where columnists leave an open space for comments for front-end readers besides similar practices that are applied in patents-review nowadays.

### *2.2.3 CrowdSourcing and Pyramiding Expertise*

The success of crowdsourcing startups requires a supportive team which is diverse and motivated enough towards certain subject. This taps in synergies, efficiency and

collaboration matters in order to enhance performance. There are many traditional areas that while writing this thesis are getting more open towards online-audiences in order to enhance their core competences and expertise. Despite fears of disclosing information over competition, in some industries the boundaries between company and market are getting blurrier day by day with increased online-collaboration. It seems that the increase of information-availability keeps growing towards a social trend supported by networking, while infrastructure keeps its capital trend supported by privately-held companies. For instance while writing this thesis in the United Kingdom an initiative to make all basic research available in the internet for UK-citizens is under scrutiny. When a participative pattern can be followed whenever a group of people has common-interests in sharing and collaborating, it also opens the door of sharing idle capacity, hardware, or even give donations and direct financial support in practice now in the form of crowdfunding. Meaning that the more open the participation process is, the better the results are monitored, tracked, reinforced, supported and aligned towards the achievement of pre-established goals. These ventures have shown success in the past in the many-to-many model of the open-source development, and this is why this practice is currently working in other industries with the help of web-based instruments.

Pyramiding, crowdsourcing, open innovation and online communities are ways of collecting collective-knowledge. In the case of pyramiding the referral process can help to determine where the expert is faster and more effectively, whereas crowdsourced audiences can validate, give support in the analysis, and polish the results. While pyramiding is solely focused on the chase of existing-expertise, crowdsourcing taps in the capacity constraint that expertise needs from analysis and validation in order to expand the boundaries of current performance (Howe 2009). Pyramiding could be considered the base to launch a community that aims to crowdsourcing-practices. Crowdsourcing helps to spot enthusiast that could become experts later if engagement in the collaboration takes place, and results measurements are satisfactory. Meaning that finding and creating expertise, are two different things that can be done simultaneously, for instance by giving the tutorials, the tools for practicing, providing the environment, motivating, finding and defining applications, making marketing, and having access to experts; all these create expertise and demand team-work. In the other way around recognizing existing-expertise is the quest of current online open-models as it is cheaper to find someone with ready-solutions than investing resources to understand the basics behind certain issue. Still it remains challenging to make experts and key people to work together in online-projects in support to Surowiecki (2004) that says that one person alone might be very good at something but best-results come from group-efforts, team-work, and collaboration.

## 2.3 Online collaboration and Wikis

In this subchapter the importance of partnering for collaboration is explained. The potential practical-use of literature when trying to find expertise and enhance partners' collaboration for innovations by using wikis as an online tool is also summarized. At the end of this sub-chapter some implications when approaching online collaboration, risks, benefits and limitations that have been identified are also shared and taken as starting points for theoretical-application of crowdsourcing.

### 2.3.1 Partners' Collaboration

Partnership is the deepest relationship type between two persons (Gomes-Casseres & Leonard-Barton 1997; Ali-Yrkkö 2001). Partnership is also regarded as a close and strong interactive relationship between business organizations (Cooper et al. 1997; Dutta & Weis 1997). Partnership is synonym of alliance or inter-organizational-relationship (Blomqvist 2002), normally stated in long-term contracts in which profits are equally shared by the partnering organizations (Edelmann 2001). Partnership is a dynamic relation with mutual objectives, with balanced synergies, autonomy, mutual-respect, equal participation in decision making, mutual accountability, transparency and identity (Brinkerhoff 2002). Partnership is a tailored business-relation based in mutual trust, openness, shared risks, and shared rewards that generate a competitive advantage and profitability (Lambert et al. 1996). Partnership is a precondition for collaboration denoting commitment and willingness to share complementary know-how, skills and capabilities.

Collaboration is understood as the means of survival and the only way of accomplishing something greater than a single individual can do (Merriam Webster 2013). Collaborate is also regarded as cooperate, concert, concur, conjoin, join, league, team-up and unite. According with Pihlajarinne (2009) collaboration and cooperation are two different things. Cooperation includes information sharing activities, adjustment of tasks, and resources-sharing to achieve a compatible goal, which reinforces status quo and aims for sustainability of certain conditions. Collaboration includes all previously-mentioned matters inside cooperation but it also demands risk-sharing regarding resources, responsibilities, losses and rewards. Collaboration also diverges from cooperation in its strategic approach, whereas cooperation could be seen as an operative endeavor. In other words cooperation looks for something in return while collaboration as well but by doing it together.

In organizational theory, collaboration is defined as a concept that may represent different inter-organizational relationships, which includes all kinds of arrangements

between companies (Hibbert et al. 2008; Edelman 2001). Hibbert et al. (2008) mentions a series of inter-organizational arrangements to describe collaboration like alliances, joint ventures, partnerships, and networks. Collaboration can also be defined in literature by its characteristics like international-collaboration, cultural-collaboration, military-collaboration, technological-collaboration, collaboration towards world class innovations and so on and so forth. Whatever the case collaborative culture includes trust, information sharing, openness, communication and mutuality (Barrat 2004). Collaborative process includes joint decision-making (Stank et al. 2001) and joint problem-solving (Spekman et al. 1998) as a result of information sharing activities (Sabath & Fontanella 2002; Stank et al. 2001; Barratt 2004). Collaborative supply chain includes two or more companies that would profit more by working together than alone (Simatupang & Sridharan 2002) including even collaboration between competitors. The long term goal of collaboration should be profitability for all the members involved in the collaboration and the creation of a competitive advantage (Narus & Anderson 1996). Pisano and Verganti (2008) point out that collaboration cannot bring the same value to everyone as a result of the trade-offs coming from different members involved in the collaboration. Different levels of collaborative practices also achieve different performances by the members (Simatupang & Sridharan, 2005). In the particular case of online-collaboration Pihlajarinne (2009) says that there is no evidence to understand the performance regarding the implications of profit and risk sharing. Negotiation-power is also mentioned in the dynamics of collaboration by Kampstra et al. (2006) who tells that collaboration can only truly happen between two equally-empowered companies, for instance between a major manufacturer and a major retailer. Min et al. (2005) suggests that collaboration should be defined through "firm's culture of working together with other firms towards a common set of goals that brings mutual benefits to a partnering relationship". Merges, innovations, and/or economic-enhancement are results of successful collaborations.

Open communication and information sharing is a must for collaboration success (Rikkiev 2012). Formal and informal communication like memos or nowadays even online-chatting, help to reach a mutual understanding in order to achieve the goals of the collaboration. Informal communication can help to create trust and to anticipate behavioral discrepancies that may affect the outcome (Kelly 2002). In online communities the lack of trust is a latent problem as potential participants might be unwilling to collaborate truthfully with the perception that not everyone will contribute in the same manner (Kramer 1999; Andrews et al. 2000; Empson 2001; Cabrera 2002). This might be particularly difficult to grasp at the individual level, but it should be compensated by the contributions coming from enthusiast and partner-members as trust can be increased if participants can perceive reciprocity from other participants (Molm et al. 2000). Schulz (2001) provides evidence of the relation between sharing and

reciprocity, indicating that sharing stimulates a reciprocal flow. One way companies are tapping in online-collaboration is by creating tutorials, software updates, sharing their ideas on the shelf and disclosing information about current-challenges or future plans, among other things that aim to attract external collaboration. Online-communities opting for an open to all setup should be able to track front-end access in order to understand their users and enhance their offering. Google-analytics is a tool that can give indicators to understand online-audiences (Appendix 7). These indicators include demographics describing the behavior of users, new visits and returning users, frequency, how long a user stays in a page, their engagement-level, and not only but also details regarding gender, scholarship, access and others that can help to better understand audiences and enhance offering for better collaboration.

### 2.3.2 Wikis

A wiki is an online repository of information displayed in an editable-for-everyone webpage that keeps a tracking record of any modification. Wiki in Hawaiian means “fast” and it is its fastness together with its openness that allows very easily to spot un-accurate and unreliable statements in order to be either changed or reverted to previously “accepted-information”. Before contributions can take place in a wiki, registration must take place. Only registered-members can either edit or start-new articles. Registered members are subject of creating popularity among certain subject(s); for instance in a wiki-community it is possible to track members contributing in certain areas, and contact them directly for further personalized inquiries. Member users can remain private and the use of alias is the norm. In regards to the information displayed, a wiki could be the mere definition of a word, an image or go to the extent of a well prepared dissertation or business-plan. There are no constraints when it comes to digital-content in a wiki; for instance Wikipedia has its own wiki-article to explain the meaning of “wikis” and also to explain what “Wikipedia” is (Wikipedia 2013). In the case of Wikipedia some of its wikis could be considered academic contributions, and other wikis mere propaganda with doubtful entries. Though it is argued that wiki-risk of unreliable entries is tapped by the fast and easy way of contributing and modifying the content. It is also possible to revert to previous versions in case a change takes place with incorrect information. Wikipedia is an outstanding example of online-collaboration as well as a radical and technological innovation. Wikipedia has 25 million online-articles created by 100 thousand member-writers (Wikipedia 2013). Meaning that on-average a member has written about 250 articles; though it has been monitored that most of members are one time contributors. In other words, one time contributors are people that really have something to say about a specific-topic. It is estimated that Wikipedia receives about 365 million front-end users in regular basis all around the globe in 285 different languages. According with Hoovers (2013) Wikipedia main competitor is

Encyclopedia Britannica main player affected by the innovative-disruption in the media-information ground. But Wikipedia also challenges Google and traditional-marketing companies in the wide-spread of content. On the other hand Wikipedia only has 30 based-employees funded through donations and grants as a non-for-profit organization. According with Alexa (2013) Wikipedia is ranked sixth in world internet traffic with most of its appeal towards childless-men under the age of 35 years with postgraduate education. Wikipedia is also an online-community that is regarded as a cult-like community with antielitism and disregard towards credentials. In accordance with the definition of Howe (2009) Wikipedia is also a crowdsourcing-mechanism. The crowdsourcing-call in Wikipedia is for writing collaborative-articles contained in their own wikis by subject, whereas rewards and motivation to collaborate according with Antikainen (2011) are intrinsic in the quest of recognition and social status. Disclosing agreements are plain; whatever is pasted in a wiki is published as a public good which inhibits the share of findings from people that might have invested a considerable amount of resources to get particular information; this is also the reason why more private wikis are emerging. Wikis may also have confronting opinions in regards to what the “correct” information is which may lead the editing process into an “edit-war” with discretionary decisions. For instance disputes over information validation can call for consensus; additional-comments or even arbitration from pre-established steering-committees can come into force. In these cases the committees are focused not in the content itself but in the dispute and the way the dispute is conducted instead, which mostly reinforces productive-editors’ work, pick to end relations or even ban problematic editors and exert editing control over the content. Though arbitration does not secure that content might be constantly changed even for the same people, as privacy policy gives the possibility of creating new user-names from different email accounts, where in such cases admin-users end up locking the content of an article for a while. In the other way around Wikipedia also offers featured content that has been deeply reviewed and validated by editing-partners (super-users/experts).

Despite Wikipedia, wikis are rapidly being incorporated into business-structures as a way of documenting tacit knowledge (Kiniti 2011). Many companies are creating their own data-bases through wikis, keeping the rights over the information and been privately managed. Within organizations management can keep the right to refuse admission to external parties or just make the wiki an internal tool for security reasons. Wikis can also reinforce proof of credentials or ask for face to face validation; yet this kind of moderation reduces the advantage of wikis over their low-transaction-cost which is the main competitive advantage in terms of information sharing, access and management. Also privately-held wikis can be either completely open-wikis to the general public or private with access granted only for current stakeholders. Wikis can also have a mix of both or even have layer-access between front-end and back-end



access; which stills allows volunteering and expertise bundling. A wiki can also have collective-editing by authorized members and if external audiences are able to visit the contents it is possible to leave a box-for comments at the bottom for all front-end readers which are not registered. Though when a new wiki starts the content may look as a conversation where different contributors express their thoughts in a sort of chatting-room or a simple written-conversation. Eventually once main concepts have been clarified; polishing and editing can take place also in a collaboratively way.

In companies most remarkable usages of wikis are collaboratively trouble-shooting and process-documentation (Kiniti 2011). However in organizations the implementation of wikis could be considered an additional burden of other collaborative online-tools like emails, intranets and tailor-made information management platforms (Grudin & Poole 2010). It has been also argued that for some people it might not be as easy as to start giving input in web pages because they are use to read-only pages (Raman 2006). Issues related with the adoption of wikis go as far as a change of information-sharing culture which has to be supported by senior management and a clear purpose of the wiki in order to be successfully implemented inside an organization (Kiniti 2011). In the case of innovation-processes in companies wikis can be used to post ideas of new products, how to use existing products better and in general to create consensus and share results for idea generation, idea selection, designing, manufacturing, implementing, and commercializing products and processes. A wiki can be the place where different sites and/or community-members get together to share their findings in order to boost a development process. Wikis working in the web like other web-based tools can provide great benefits to unify, at a very low-cost transaction, entire or partially-shared development processes. However web environments are subject of external transmission as well as permanent or temporal storage of third parties demanding practices related with information security and web management, main reason why wikis are becoming more private and only working through intranets or private networks.

### *2.3.3 Risk, Benefits and Limitations*

Benefits of online-collaboration are at a glance, from reducing transaction costs to dynamically document and instruct innovation-processes at a global scale. Yet, online collaboration lacks the benefit of sharing ideas face to face and therefore allows no deliberation which reduces diversity and consensus. Also it is not possible to reinforce accountability, is sensitive of fraud, fads, information cascades, having multiple users under the same member, cases of people claiming to be a person that they are not; among some of the risks of online-collaboration (Howe 2009). At the crowd level online-collaboration risks can go as far as receiving input from a non-representative audience, information bubbles, multiple members under the same user, votes-trading,

mimicking, activism, and malicious advertising among others asking for constant pitching and monitoring of front-end access. Online-collaboration also has many limitations that may increase the risk of failure and make harder to succeed. Limitations can be sometimes both, beneficial and risky; for instance “privacy policy” could be seen as a limitation to validate the source of information, but also an incentive to participate anonymously without fear of punishment. Ideas are better when they do not contain prejudgments, clichés or personal paradigms; a psychologically safety environment where people can contribute without being punish in case of failure but in the other way around, with chances of reward (Surowiecki 2004).

Yet the biggest risk seems to be starting a project without a well defined idea. Not having a clear goal behind a collaboration that is intended to be online and the way members are expected to collaborate are major concerns as the lack of face to face communication limits the possibility of clarifying matters. Having a clear-goal and a systematic-approach of communication might be the only effective ways of reducing risk of failure in online-collaborations. Other matters concerning vandalism, virus insertion, spyware, quality control, evaluation and preventing features like excessive scanning may directly affect the startup of an online-collaboration to the extent of abandonment (Wagner & Majchrzak 2007). From an organization view point online crowd-collaborations offer all the benefits of regular online-collaboration with categorization and better understanding of both; the audience and the matter under discussion. The audience as a whole can be used as human processing capacity for very little if/or no cost at all. Yet, if the limitations of organizing the crowd are high the company is at least making marketing and building its brand with the potential of getting customers’ insight if not complaints. Figure 4 shows an example of how participation from audiences can be received with pre-categorization of the information.



*Figure 4. Example of pre-categorization of information (The Huffington Post, 2011).*

Some risks can be limited with dribs and drabs of enhanced-rights and deeper-access granted in accordance to the level of expertise, proof of credentials, enthusiasm and/or loyalty-level. The life-cycle itself of an online-collaboration can also determine what information will be released and retrieved, and under which circumstances

property-claims may come in force from an organizational viewpoint. Also access to experts can become direct to the extent of being incorporated into the payroll if success is proved. Most prominent downsides of crowdsourcing possibly come from a users' viewpoint raising concerns of fair-payment of online-contributors, becoming part of a targeting group, giving up information without retribution, impossibility to reinforce agreements or simply the shutting up of the collaboration due to lack of funds or tracing. From an organizational viewpoint, contributions from online-crowds may require additional resources for inspection and validation (Loosli 2013). No mentioning issues that come at a higher scale related with taxation and other duties currently asking for new legislation and international commercial-laws.

## **2.4 Implementation of CrowdSourcing**

This subchapter outlines the scope and setup to implement crowdsourcing. Also in this subchapter are presented some of the matters that motivate people to participate in online environments. As well as some stages of the life cycle of crowdsourcing ventures that have been identified are shared in this sub-chapter. This sub-chapter is intended to serve as a base for the practical-contribution already with a pre-understanding to approach crowdsourcing ventures.

### *2.4.1 Scope and Setup*

Before starting a crowdsourcing venture it is crucial to fully understand the nature of the need and goal of the collaboration in order to pick up the right model (Howe 2009). A need can be approached like either a mix of or one out of three problem-solving categories at the crowd level (Surowiecki 2004). With a clear understanding of the nature of the problem(s) behind the need, the need can find a suitable ways to be served at the crowd level. Surowiecki (2004) identifies three main problems that can be approached at the crowd-level:

1. Cognition problem: related with the gathering of ideas and knowledge. It is directly associated with the awareness-level of the crowd towards a particular issue and the availability/existence of information. Cognition problems are directly related with expert-knowledge and mass-use. The problem itself can be - to find out what ideas have the most promising impact in terms of activity-level. Example: What would be the best place to build a new public swimming-pool?
2. Coordination problem: related with the gathering of relevant-information that the crowd is able and willing to share in regards to a certain goal. The assumption is

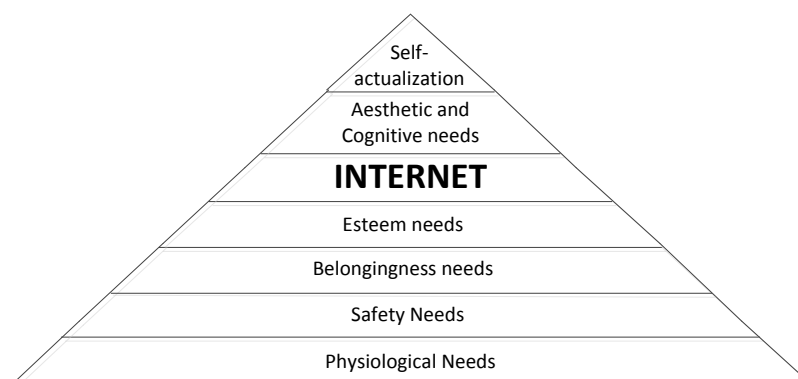
that by gathering more information it is possible to come up with a better solution by aligning the structures engaged in the problem solving. Coordination problems can also be self regulatory and coordinated by the crowd itself. Example: What the fastest route at rush-hour is?

3. Collaboration problem: related with the actions that take place within the crowd to solve a problem. It assumes that collaboration towards a problem gives better results if everyone participates truthfully and with the best of their knowledge. Collaboration problems demand arbitration from experts able to validate-decisions. Example: How to diminish pollution cross regionally?

In practice, cognition-problems needing validation of information and facts-sharing, can be tackled with the availability of suggestion-boxes open to make idea-jams; this may include coopertition-models with possibilities of replication. Coordination and collaboration problems can also be mixed models in crowds, such as co-creation and micro-tasks which are smaller tasks splitted from bigger projects that can be broken as far as the level of a mouse-click. Collaboration and cognition problems can get a boost from crowd-voting, crowd-selection or crowd-tagging to either select or organize ideas. Collaboration problems can go as far as receiving funding with the help of crowdfunding-models.

After knowing the goal and the right model a base-community has to be appealed and engaged in order to sustain the crowd. Also the previous points have to be discussed and re-assured with the steering-committee. Other conditions necessary for the crowd to be smart enough are: diversity, independence, decentralization and a common goal. At this point it might sound obvious that crowdsourcing aims at digital-natives, where internet access is a precondition. Here it's important to consider that migration towards collective-smarts in an online setup casts away the opinion and possible-input of all the population that has no-internet access. Still today more than half of the world population has no access to internet (Internet World Stats 2013). This fact has major consequences to the extent of seeing a new Maslow (1943) hierarchy need for internet access (Figure 5). But already inside internet it is important to select the right channels to broadcast the call for participation. It might be possible to find online-communities already established and related with the goal of the venture in web-environments like LinkedIn, Facebook, Twitter and others. These web-spaces could be used for marketing-campaign purposes and share "the call" for participation. It is also recommendable to piggyback crowdsourcing-calls with well-known companies and institutions to tap on reliability issues and take advantage of pre-established brands, networks and their communities. It is very important to make "the call" as clear and succinct as possible. In this sense rule

of thumbs goes: “less is more” in order to avoid raising doubts or any adjacent interpretations of the intended goal.



*Figure 5. Maslow's hierarchy needs (Maslow 1943) + Internet.*

While trying to understand/find a current need it is possible to make regular screening in a pyramiding-fashion in order to get to know as much as possible about other people involved in the matter at the expert level. As mentioned before the success of online-communities relies in great extent on the ability of creating a strong network, but it is best to see if relevant existing networks that could serve the purpose of the project are already available and look for synergies. A steering committee with people related and directly affected in the matter under discussion could be seen as the base of any community. Online-communities are the building block of an online-crowd.

Best crowdsourcing practices demand:

1. Visibility
  - a. of members,
  - b. of information,
  - c. of the relation between member-member, information-information and member-information.
2. Selection (Institution, Private-Government-Academic, Country of Origin, Field, and related categories)
3. Categorization (Activity-level, access point, demographics, and related categories)
4. Identification of roles (facilitators, benevolent-dictators, super-users, steering-committee, regular-users, one-time-users, experts, evangelists, maintainers, observers, potential-investors and other users)

After knowing the goal, model, desired-audience and channels to spread the call it is needed to keep visibility, and select and categorize information in a systematic way.

Clear roles inside the crowd need to be granted in order to increase the possibilities that the scheme will be followed and more easily be modified if needed. Some other rules to follow in crowdsourcing ventures are: constant cultivation and guidance, spot volunteering and enthusiasts, keep the venture as simple as possible, keep in mind Sturgeons Law (90% of everything is crap), crowds are self-regulatory, the community is always right, and keep thinking how it is possible to contribute to the crowd.

To some extent crowdsourcing could be seen as the setting up of a process to either serve a need or find a solution, from the crowd or to the crowd, to any of the three problems explained by Surowiecki (2004). A process involving large number of contributors involves the setup and implementation of a production line; or even to split the project into smaller-discrete parts for easier compiling or even to protect the final outcome of the project. In the particular case of crowdsourcing the implementation of a project is an evolving learning process with different stages that go from idea-generation towards a marketing-phase. For crowdsourcing it is crucial to have a strong community-base that has accepted online-collaboration as a beneficial way of working. A setup which is open for everyone, open for some, with different layers between front-end and back-end users, categorization of roles, life-cycles and clear intrinsic and extrinsic motives to collaborate are some of the things to be considered during the setting up of a crowdsourcing-venture.

#### *2.4.2 Drivers and Motivation*

One of the main factors that make people participate in online-communities is the promise of a reward (Antikainen 2011). A reward can be intrinsic, extrinsic or social; intrinsic and extrinsic rewards are also called direct or indirect benefits. Direct benefits can be money back for input, gifts, entertainment, and information among others; while indirect benefits are similar to social ones more rooted in the personality of a user. Intrinsic motives can be the search of recognition, career advance, intellectual challenges whereas social motives include altruism, cult, sense of belonging, or even friendship. The rewards and promise of development are factors that motivate people to gather up, actively participate, and monitor the activities inside an online-community. A popular venture is that with visibility of well recognized experts, companies backing up the process and an interesting reward. The reward in any case has to consider the characteristics of the audience to be approached as it does not demand the same approach for people looking for a professional-career advance or looking just for something to do during their free time.

The mixing of experts and amateur contributions has been proving effective as a two-way conversation. From a company perspective a two-way conversation allows to

reduce transaction costs, but also at the individual level by paying just a fraction or even get the possibility to produce what is wanted. In this sense we-give-you-the-tools, we-give-you-the-advice, do-it-yourself and share-the-results is expanding the boundaries of best performance. This approach also keeps the door open for companies to invite users able of making a “hit” to be part of the team. For instance Wikipedia has no transaction costs to give the job for writing an entry or YouTube, in comparison of the benefit, invests almost no resources to gather content and spot talent.

According with Antikainen (2011) reward strategy has to be:

1. Transparent and logical.
2. Democratic and equal.
3. Flexible and customizable.
4. Active with participation and feedback from maintainers.

Crowdsourcing is rooted in an egalitarian principle stating that every individual processes a piece of knowledge or talent that other individual will find valuable, crowdsourcing makes the connection possible (Howe 2009). Diversity is what drives collective-intelligence but only when individuals are able to express their thoughts truly; otherwise the collaboration turns biased, hyped or with polarized standings (Surowiecki 2004). Motivating collective thinking, intelligence, and creativity to improve the results requires methods, tools, incentives and a clear rewarding strategy based on meritocracy. As it is not possible to manage external contributors in online-ventures, one way to keep people attached to the collaboration is by providing upgraded tools, tutorials, updates of findings, statistical information, smashups from other contributions, announce rewards publicly and make graphic representations of the results in order to create a sense of efficacy. According with Bandura (2000) collective efficacy significantly boosts groups' aspirations, motivates investment, morale, resilience to challenges, and final productivity. Also a closely monitored venture, with a crowd already engaged to it, has a much lower time to market as most of the audience is waiting for the launch of the new stuff.

### *2.4.3 Life Cycles and Upgrades*

Crowds develop from communities and well established enterprises. In the other way around a new-community or, based on open-innovation principles, a new-company could come out of a crowd; creating a sort of evolutionary and cyclical process. In this sense it could be possible to say that in online-communities most of the members know each other and credentials might be asked before registration; whereas at the very basic level of online-crowds anyone can join and no registration is needed. For a better

understanding of online-crowds Howe (2009) has identified some of the things a crowd can do:

1. Classify and tag.
2. Find a problem/need.
3. Vote for consensus.
4. Provide solutions.
5. Select a solution.
6. Rate a solution.
7. Buy/Fund the solution.
8. Plan actions.
9. Clean up the crap → Classify and tag again.
10. Start its own venture → New community.

Companies and organizations can use crowdsourcing as a complement for:

1. Data collection.
2. Processing capacity.
3. Marketing.
4. Development tool (of experts).
5. Selection tool (of experts).

At the interface level the crowd can be guided through updates, services, mash ups of inputs, and graphical representations. The interface also can serve as a point of contact either with the companies involved in the venture or the steering committee. In this sense online crowdsourcing-ventures present a new way to approach and deliver projects with the creation of dedicated online-sites. Understanding the website as the meeting-point or environment to receive and guide the contributions of a crowd (Howe 2009). Crowdsourcing might be relevant for projects with the potential of receiving relevant participation in order to validate matters of general interest. It has to be considered that with the complexity of the subject, difficulty to find people willing to share view-points increases. Yet crowdsourcing projects can be divided in easy to digest tasks which increase the chances of getting help while protecting the final outcome of the venture. Mechanisms to sort out online crowdsourcing contributions should be periodically managed with deadlines to disclose information after certain amount of participants, have participated. Other dimensions like the level of interaction, critical mass of users, and interaction-level required for successful accomplishment of the task have to be considered. It is important to establish a way of measuring the results in order to realize if the venture is developing-positively or not, with these previsions it would be possible to identify unforeseen stages that might require re-thinking while trying to



implement crowdsourcing practices in practice that go in accordance with the nature of the collaboration.

### 3. CASE DESCRIPTION

Chapter three introduces the Baltic Institute of Finland and describes the two projects that were taken as study cases. This chapter also addresses the relevance of crowdsourcing for organizations similar to the Baltic Institute of Finland and how crowdsourcing could be used to serve in present or future projects, filling up needs with most suitable solution without increasing the budget for it, create value and enhance projects profitability. Also in this chapter some of the expected results from chapter four are discussed in advance.

#### 3.1 Description of the Baltic Institute of Finland

The Baltic Institute of Finland (BIF) is an NGO for regional development. The mission of the BIF is to procure collaboration among organizations in Europe in order to bring sustainable-development and create value in the Baltic region. Procurement activities can take form in networking-cultivation, information-management, conciliation, and attainment of expertise in order to achieve the goals of the projects under BIF's supervision.

##### *3.1.1 Project's Conception*

During the conception of a project the main aim is to promote collaboration among regional parties and identify most relevant issues for bolstering regional development. A competitive project should gather ideas that are economically relevant. One key point here is to decide which ideas should be selected and presented. This process of ideas selection is resource consuming and unavoidably creates tradeoffs from unselected ideas. At the top of all any project should provide value from Finland to the Baltic region, and create synergies for collaboration.

Some points considered when preselecting a project are:

1. Critical mass of engaged external-parties.
2. Project's cost-effectiveness.
3. Factor of economic-impact.
4. Level of expertise-required.

Some points to be defined when preselecting a project are:

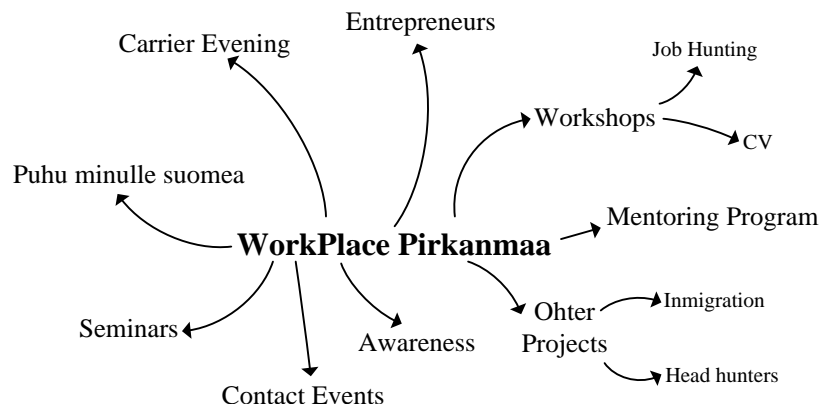
1. Goals.

2. Time frame.
3. Management team.
4. Roles.
5. Niche.

Most relevant during conception-time is the way the BIF approaches external-parties in order to get relevant contributions for a fund-effective project offering. Approaching external parties includes scouting work for identification, and public-relations activities to appeal participation. External-parties encompass a crowd integrated by decision makers, researchers, authorities and experts that can generally be found in university faculties, researcher centers, private companies, and governmental agencies. Experts can be also house wives, bus drivers, and regular people in general that have expert knowledge in regards to certain measurable-field. For the BIF is critical to prepare and plan its projects together with external parties in a resource wise way in order to have better chances to present relevant projects for the region, diminish project risks factors, and get better chances to obtain funding.

### *3.1.2 WorkPlace Pirkanmaa*

While writing this thesis WorkPlace Pirkanmaa (WPP) is an ongoing project from BIF that started operations in April 2010. The project goal is to strengthen links between international-students in higher-education institutions and private sector in Pirkanmaa region Finland. Many efforts go around the idea of making easier the hiring process of international students from the company-side. The project includes collaboration from private companies, companies' organizations, recruitment-companies/head-hunters, city authorities, university authorities, and international students. WPP has done a great deal of collaboration pooling effort by showing to the region the needs and opportunities of hiring internationals. In the other way around WPP has also done a great attempt in orienting international students to better integrate into Finnish working-culture and find more business opportunities in accordance to their particular area of expertise. Figure 6 shows related efforts carried out by WPP to achieve project's goals.



*Figure 6. WorkPlace Pirkanmaa Efforts.*

In the case of measuring results and monitoring WPP project related activities, it seems challenging to find out what is actually really working because it's a long term development process. At the moment its neither possible to measure the impact nor compare results of "carrier evenings" associated activities, with the integration efforts of "puhu minulle suomea" campaign or the efforts around the "mentoring program". Say it in other words, it is hard to differentiate the things that are actually helping to accomplish the goals of the project versus does that are not helping.

As a non-profit organization bidding is a must in BIF projects' purchasing processes. Suppliers' selection decisions are based on a combination of cheapest option offering, competences, motivation, and experience. The different proposals are reviewed and selected internally. Donations and volunteering are always welcome and placed at top. In the particular case of WPP when hiring someone requiring special skills, a face to face meeting is required to decide whether a person is suitable or not for the goals of the project as well as in the case of choosing a partner. For the latter there are no rules of thumbs and discretional decisions from the management team come at glance when for instance is needed to determine whether a person is really willing to cooperate or not. Related with information management tools WPP does not use the current BIF's intranet-extranet tools. A newsletter tool that allows sending information by group it is in use. The project has its own web page which provides project related information in both English and Finnish. The webpage has the option for external comments but it has not been enabled for precautions-reasons. The management team considers that more IT tools to handle information would be of great benefit for the project and a must if the project keeps ongoing in the future. Moodle seems to be a low budget and plausible solution in the short term even though is not a graphic friendly interface and might limit external visibility. In the same direction looks like it would be beneficial to keep track of the internationals-alumni involved in the project where LinkedIn seems to be a suitable

solution to answer future questions like: Where are the international students who have studied in Finland?

WPP is a self-learning project that only requires guidance, meaning that the crowd/people/parties involved in the cooperation start gaining more insight/experience/expertise related on achieving the goals of the project. A critic point in this respect is on creating value for all the parties involved in the collaboration. Value could be represented in many different forms in accordance with the perspective, but perhaps the most important working mostly as a multiplier of efforts is when people with similar career path get connected, in other words when the relevant parties get connected; the connection is made by BIF's staff. In the case of value based on knowledge-sharing-activities the project is already getting great insight out of participants' feedback and the project is very likely to be continued in the future. At this point it seems like the key is on getting visible feedback and identifying successful cases of success in order to attempt repetition. WPP could gain greater visibility and be used as a model to launch similar projects in other cities of the Baltic region.

The different nature of interests coming from university staff, small-medium-big companies, and government, together with the cultural diversity integrated of international students, provide different shades when either considering a regional or an individual developing perspective. This has required political and lobbying skills to successfully approach and show benefits to each related group in order to pool cooperation. In the particular case of WPP open-share of information is important and does not conflict with the objectives of the project as whole but on the contrary it is seen as the only way to achieve further goals. Nevertheless it is not certain what kind of information is acceptable to be disclosed for each party involved in the cooperation. An interface that could bring together people/information involved in the project could be beneficial for achieving project's goals even though assuring participation seems to be challenging. An effort in this respect comes from the University of Tampere (2011) where WPP has gained visibility already. International coordinators from some programs in Universities around the region are sometimes sensitive on sharing their contacts, whereas some others are willing to happily cooperate. The first seems to be related with a matter of interests, and the "risk" that students from other programs will get available positions from their contacts. This is a clear example on how the individual perspective is placed ahead the regional development from the lack of a wider-longer development vision. In this respect it is considered that assisting international students in their carrier development and network building in Finland should become part of international coordinators' job description. The last should consider best fit for the partner company which implies that this may include students that are not related with that particular coordinator.

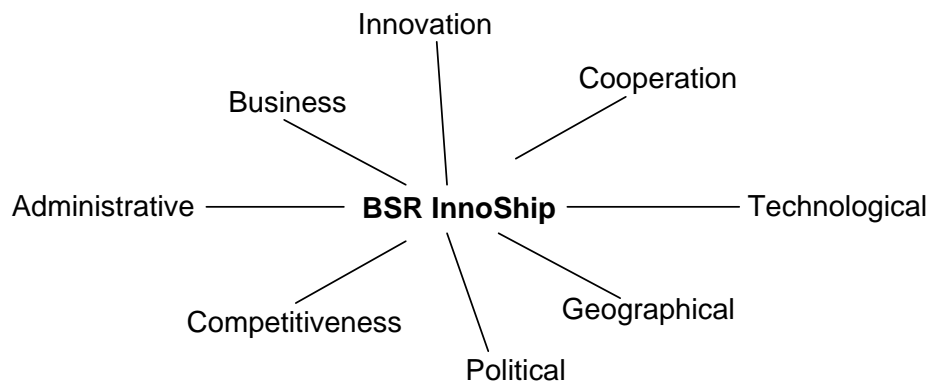
### *3.1.3 BSR Innoship*

BSR InnoShip is an ongoing project looking for cooperation among countries of the Baltic Sea Region to start diminishing Oxide emissions by 2015 in order to ensure future sustainability of the Baltic Sea resources and marine industry competitiveness. The recommendation to prepare national-implementation plans is encouraged and reinforced by new regulations established by the International Maritime Organization, United Nations' specialized agency for sea matters. The new emissions-regulations' levels, which are focused on lowering Nitrogen Oxide (NoX) and Sulphur Oxide (SoX), should take place by 2015. These two oxides are the main cause of eutrophication, which is an environmental effect that limits water nutrients and endangers sea life. The new Tier III for Nox emission standard's goal is 80% lower in comparison with Tier I, whereas marine fuel cannot exceed Sox level of 0,1% which should be enough to revert the current situation of the Baltic Sea Region by 2040.

The BIF is currently the lead partner of BSR InnoShip. The whole project formally started one year and a half ago, but in practice the real kickoff took place on February 2011. From BSR InnoShip current management point of view, the requirement of lowering oxide emissions was a political decision with huge related costs. Projected benefits and costs are open to argument in terms of the way calculations took place as these might contain either arbitrary and/or qualitative factors difficult to be quantified and measured. Moreover at this point, the management thinks that the deadlines are not going to be accomplished and duties will be bridged throughout legislative “tricks”. The contribution from BSR InnoShip, which it is supposed to be delivered by 2013, will include a package of information describing best practices for dealing with some of the issues that need to be addressed in order to reach the goal of the project. The package would be divided in a set of different areas including recommendations ranging from the very basic ones related with operations, technical engineering solutions, and the social oriented recommendations going as far as the political level.

A project with the scale of BSR InnoShip encompasses many complex issues that range from the very cultural to the purely technological. The complexity behind reaching the goal requires new forms of thinking, cooperation, knowledge sharing practices, and innovation-based and cost-efficient solutions. The project requires people able to cooperate and compete at the same time for the sake of a grater regional good. These kinds of interactions, that aim to enhance regional development, may be addressed from many different perspectives according to peoples' backgrounds. Many of the efforts from the BIF go around creating interactions among people to discuss and search an optimal solution in a competitive-cooperative way. This setting has, almost as

a rule of thumbs, given room to persons with the strongest voice to rule other's views. The last does not necessarily guarantee that the optimal solution is reached. The different perspectives around the project are shown in Figure 7.

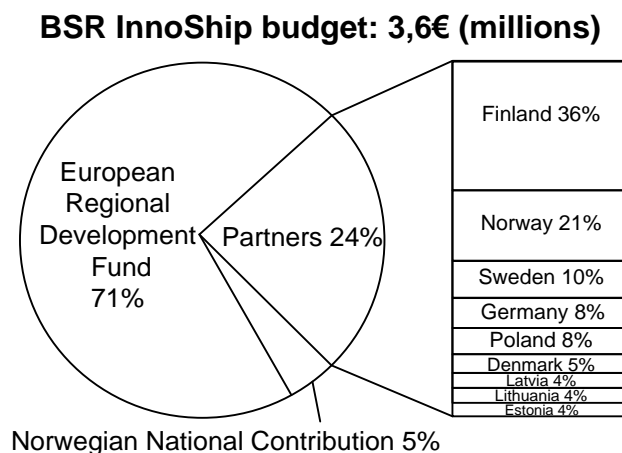


*Figure 7. BSR InnoShip perspectives.*

In order to address different areas, and successfully take into consideration different views, different sets of people and approaches are required. Slicing the project by perspective could help in order to address the problematic from different fronts. In this sense areas of knowledge, could be separate in order to bring a clearer view over the big picture. Here something to be considered is that even though the whole project could be separated in different pieces there would still be very diverse opinions on separate areas. Nevertheless the management considers that there should be enough potential of arriving to actions by addressing issues in isolated areas.

The whole development process has several stages. Even before the conception of the project, for instance procuring partners is a long consuming time process that requires active communication with different organizations and getting immerse in the subject cooperatively in order to assure participation. The project started with a budget of approximately 3,6M€ held by 19 partners spread in 9 countries (Figure 8). Partners and associated-partners include universities, research centres, non-for profit institutes, state offices, private companies, and organizations that could be said are a mix of the previous ones (Appendix 8). There are other 25 associated partners supporting the project including two state offices from Russia. In the particular case of BSR InnoShip the partnership needed to be expanded geographically and invite people to participate from different contacts. However partnership is limited to budget, one of the main reasons why the procurement process before launching project is so long. At the moment the entrance of a new partner or associated could only be received as volunteering work. In terms of performance indicators, to realize how the project is doing is a difficult thing to determine. For example commitment can be something

rather hard to be quantified but still it is possible to measure attendance to events in comparison with the confirmed list of guests. Outcome indicators for administration can be seen over deadlines deliverables. It is also possible to see what has been achieved in terms of budgeting over people actively participating in the project.



*Figure 8. Starting Budget BSR InnoShip.*

When procuring experts the management opts for a straight contact with the attempt of selling expert's participation over the project. In this respect, the management thinks that locating the very top expert in terms of deep expertise, in addition to the current experts that are already project partners it is not a critical success factor for the project. The success seems to be laying down on the ability of unlocking innovations among partners, including associated partners. The management does utilize referrals when aiming to build an innovation environment, but here the objective is on the diversity of expertise. In the other way around when it comes to dealing with policy makers it seems to be useful to have intermediaries as the message, that requires to be delivered to them, can get stronger when more people are involved. For each case, expert or policy maker, the management has different communication approach, for example with an expert it might adapt the position of a buyer and with a policy maker the position of a seller. Face to face setting seems "the way" of getting to know thin knowledge that otherwise could be misunderstood, for example a matter of opinion that might require to be explained in detail can take place among a limited amount of people, explains the management. At the moment it seems to be early to consult external parties in order to get to know their general thoughts related with cooperation and regional development, project visibility and increased participation of the public in general. Management's opinion is that an approximation of this nature could hinder stakeholders' interests and diminish full appreciation of the project results.



In the other hand online-sources offer certain visibility over the project. For instance there is information to realize that the project has been divided into 5 work packages and assigned to partners where is possible to see certain match of intelligence in accordance to partners' characteristics and operations. It is expected that the main outcome of the project would be a "Manual of Best Practice on Clean Air Shipping and Port Operations in BSR" together with recommendations. The project contemplates a monitoring mechanism based on an award for "Clean Baltic Shipping and Sustainable Port Operations". An example of such instrument is The Blue Angel Award granted by Germany for environment friendly shipping. It has been mentioned that one of the priorities of the project is to allow Internal and external accessibility to knowledge.

#### Work Packages:

1. Managing key project activities.
2. Communicating and distributing information and results in the Baltic Sea region and throughout Europe.
3. Building capacities and knowledge to reduce air emissions from Baltic shipping and its effects over marine environment and human health. The package includes revision of policies and strategies to enhance coordinated transnational environmental actions. Focus on:
  - a. Creating ship and port emission inventories
  - b. Estimating atmospheric transport of pollutants from shipping
  - c. Identifying most vulnerable areas of high risk and
  - d. Estimating emission effects to environment and human health
4. Facilitating and promoting technological driven joint development to innovate over low emissions' cost-effective solutions. Focus on:
  - a. Scanning available solutions.
  - b. Piloting solutions.
  - c. Assessing feasibility, cost efficiency, investment needs and technical capacities.
  - d. Planning adoption of solutions.
  - e. Estimating economic impacts.
5. Strengthening joint transnational efforts to make the Baltic Sea a model of low emission are sustained by a competitive marine industry. Focus on:
  - a. Supporting partners involvement
  - b. Facilitating and promoting awareness.
  - c. Sharing knowledge, experiences and lessons learn from work packages 4 and 3.
  - d. Enhancing commitment from key maritime stakeholders
  - e. Developing strategies and investment plans to adopt solutions.

The BIF is on charge of work package 1 and 2. The Finnish Meteorological Institute and the University of Turku-Center of Maritime Studies are the leaders of work package 3 in which Latvian Maritime Academy it is also included. Maritime University in Szczecin is the leader of work package 4 where The Latvian Maritime Academy, University of Rostock and Polish Register of Shipping are also taking part on. Work package 5 it is lead by Union of Baltic Cities Commission on Environment. All work packages seems to be supported in one or other way by all member partners, though so far it has not been possible to locate a source containing all this information in an aggregated fashion.

The management considers that the use of an online system requires a strong incentive to make people to use it. Innovation may be a strong enough incentive, but whatever the case this kind of cooperative tools require detailed discussion deadlines and in this respect is when it seems to start getting hard to motivate people to use an online interface which is different from what people are use to. Whatever the case, the management thinks that an online interface for such purposes should be able to communicate formalities, manage information easily and allow innovation. Perhaps what it is needed for a project with the nature of BSR InnoShip it is an innovation environment able to foster discussions and knowledge exchange. The management it is currently using a hosted-software application called CentralDesktop to manage communication among different parties involved in the project (Appendix 8). CentralDesktop is an online cloud-based social collaboration platform that seems to be simple to be used. According with the management the platform is well integrated with email communications, meaning that all correspondence no matter the email extension are concentrated in the same interface and can be answered from the same interface. This seems to be an essential feature for information integration as email is the main way team partners communicate with each other. Layers of information are already implemented and make easier team cultivation. The tool is not available for the public, neither any of the information generated in there. In other words the tool is a close environment that allows managed oriented visibility to the participants. CentralDesktop it is the tool helping to create a first report from information generated from project participants' communications. Other tool options are provided by: <http://basecamhq.com/> <http://www.zoho.com/> <http://www.wrike.com/>

For documents' building the management uses Google documents. The project is being managed and monitored from BIF's Helsinki branch. Internal communication among BIF with project related concerns relays mainly on email communications too. The extranet and intranet of BIF is used but only for internal matters of the institute. Interactive communication could be improved as well as the used methods especially

given the different location of BIF's Helsinki branch and Tampere headquarters. The management considers that there is no system that offers all solutions. The last ends up, for the time being, in a fragmentation of information. The management thinks that "communication always has room for improvement".

A project with the scale of BSR InnoShip encompasses many complex issues that range from the very cultural to the purely technological. The complexity behind reaching the goal requires new forms of thinking, cooperation, knowledge sharing practices, and innovation-based and cost-efficient solutions. The project requires people able to cooperate and compete at the same time for the sake of a greater regional-common good. These kinds of interactions, that aim to enhance regional development, may be addressed from many different perspectives according to peoples' backgrounds. Many of the efforts from the BIF go around creating interactions among people to discuss and search an optimal solution in a competitive-cooperative way. The face-to-face setting of collaboration and forum discussions have, almost as a rule of thumbs, given room to persons with the strongest voice and highest ranks to rule other's views. The last does not necessarily guarantee that the optimal solution would be found, which implies a cooperation challenge.

### **3.2 Expectations and the study setting**

It is expected that with online visibility it would be possible to gather input from crowds relevant to the projects' objectives. A participatory setup for open-audiences should be able to add value in knowledge intensive projects and increase chances of economical development. Online-crowds' input can be seen as supplement of projects, and a way of measuring projects acceptance and success, with potential of attracting and sharing expertise.

For the Baltic Institute of Finland crowdsourcing is relevant if it is possible to root it over existing networks and communities. As regional-developer BIF has to aim participatory culture and blend interactions among different stakeholders, many times cross-regionally; in order to increase success chances of its projects and blend the factors needed to increase value to the region. Even when it comes to the identification of regional goals a call to participative online-audiences is an economical solution to help clarifying most relevant issues with free exchange of information and simplified protocols. Managerial roles are also relevant as they should aim on cultivating, shaping, conducting, guiding and conciliating online contributions in order to achieve the goals of determined collaboration, find expertise and make strategic partnerships.

The crowd can participate in different stages of a development-project, and it should be treated as a diverse-group able to bring the value needed in each collaboration pool. In this sense collaboration should be seen as a cycle in which different chunks of information go back and forward from-and to different crowds. Therefore most relevant is to increase online-visibility, and get open-ended share-points in order to facilitate external participation while monitoring the participation itself. It is also possible to aim current agglomerations of crowds to approach specific projects for either group-intelligence if specific expertise is needed or for processing-capacity or a mix of both. At the moment there are several agglomerations of online-places to approach different groups in accordance with their field and level of expertise. The approach when managing crowdsourcing for the location of an expert should consider the aspects discussed in subchapter 2.2. All the same, crowdsourcing is relevant to the BIF to assess feasibility of potential projects, verify cost efficiency against investment needs, and to either get current or develop expertise for-and to enhance partners' collaboration in world-class innovations.

## 4. RESULTS

This chapter portrays web-development of tailor made web tools at the business, and to some extent, at the technical level. Also in this chapter are presented some of the most relevant experiences from development and deployment of online-tools, and cultivation of online-community. This chapter also presents some of the potential benefits and risks that projects similar to the ones that were studied from the Baltic Institute of Finland might have when trying to get contributions from open online-audiences. Recommendations based on literature review and the experiences gathered during web-tools development and deployment, are shared at the end of this chapter.

### 4.1 CrowdSourcing Implementation

Two explorations to understand how to increase external participation in knowledge-intensive projects have been carried out. One was with the help of IT-expert from Tampere University of Technology for setting up a wiki in the university intranet with some special functions, and a web-based share-point to host a community interested and involved in the subject of the thesis with the help of an external IT-freelancer. These two attempts of rolling out web-based tools were carried out in order to put in practice some of the findings from literature review while demanding at the same time to go back to the books and check more about software-development literature. Both tools were used to make a call of participation in a crowdsourcing-style and helped to realize some of the challenges related with the development, deployment and start-up-cultivation of these kinds of online participative-tools. Some comparisons of what it is described in theory and what has happened in practice are also shared in this chapter.

#### *4.1.1 From Theory to Practice*

Many of the matters discussed about crowdsourcing during literature review are mostly focused in the “form” and little is said about the “way”. When trying to figure out how crowdsourcing theory can function in practice for specific project-needs there are some matters to realize and overcome. These practical matters are related with both, the “form” and the “way” of online-environments, which is related with the “result-that-should” and the “actual-result” both related with different areas of expertise to:

1. Get and transmit an idea.
2. Host and database management.

3. Design and code the web-environment.
4. Target, select and gather a group.
5. Cultivate and monitor interactions.
6. Keep the things rolling.
7. Implement and cash in.

As already mentioned in the literature review, having a clear idea is crucial for any crowdsource-venture. Yet, even if the idea is clear, this does not mean that the idea would motivate a crowd to participate, hardly still if perhaps able to motivate a community, and a long way before cashing in. In the top of everything the goal of the venture has to be interesting, and/or offer an interesting-reward in exchange of participation. The way information is displayed and its visibility are key factors for gathering participation too; at the same time consistence of information makes easier crowd-cultivation an input-analysis. Also the hosting can be a constraint, for instance if the project gets hyped scalability of resources is a must. Constant pitching, marketing and partners' support are critical, not only to participate but also to cultivate the interactions, to select and assign resources, and to monitor the activity. From technical to financial matters, there are many things that can disrupt online participation, and only with a robust-enough support is possible to increase chances that the goal of the venture will be achieved. However still other unforeseen events can happen and stop the continuation of the venture. Ultimately after venture's actions have taken place the project has to be validated and come into force.

The display and the way how information is visualized in the front-end interface has major implications. As a rule of thumbs, the interface should be as simple and as user friendly as possible. As mentioned before crowdsourcing can be used for many things, for instance and just to mention some it is possible to find public online-places where people may be invited to:

1. Develop a new technology [<http://www.innocentive.com/>].
2. Carry out design-tasks also called community-based design and/or distributed-participatory design [<http://99designs.com/>].
3. Refine and carry out the steps of an algorithm also called human-based computation [<https://www.mturk.com/mturk/welcome>].
4. Capture, systematize or analyze large amounts of data [<http://mps-expenses.guardian.co.uk/>].

These examples are mentioned because they have in common a very clear and basic idea (target), a rich graphic interface, and they are niche-focused. What differs from site to site is the motivation to participate, the targeted people and the way participation

takes place. Even though all participation is online, there are different ways the audience is expected to participate in online-environments. All the previously mentioned sites also have a very strong community-base if not already a crowd, whereas it is possible to find many cases in the web that are striving in the built up of a community. Also these online-places have in common that a final collaborative-effort can be seen either as a whole or as parallel individual-proposal. In some cases a web-environment is able to display and gather data simultaneously, and is the tool itself the one that allows seeing the contribution of the crowd as a whole. In other cases there is a clear selection-process where final customer or steering-committee can:

1. Preselect proposals and give further details,
2. Reject or accept a proposal,
3. Combine proposals,
4. Give right or wrong retrievals open to replication,
5. Award.

Is possible to say that crowdsourcing can come from a one-time transaction if the solution comes from there, or the aggregation of many little transactions if the perspective and views from many users are needed; but it depends a lot in what the goal of the venture is. In other words some projects might require only a one-time contribution for a very specific need whereas some others might require to get input from different and diverse sources. It is a strategic decision how a project will be split up and if the front-end is able to receive different types of transactions and/or if in some part of the life-venture the setup might be upgraded or mixed to show integrated-information. In robust-projects considering different areas and development phases; there is a risk of confusing the targeted-crowd if many functions or ways to approach the project are available. In the other way around when trying to apply crowdsourcing theory in practice it is possible to get lost in the rhetoric when front-end visitors are not giving-up their input or when invitations to participate get no-response. Therefore it is important to monitor front-end access and make sure that a critical mass of participants is gathering.

#### *4.1.2 Starting from Scratch*

From the very beginning of this thesis it was decided to make something practical for a current project based on previous theories and literature. This is the reason why practical cases were searched in formal-companies. Dozens of pamphlets (Appendix 11) were sent to companies filling up the following characteristics:

1. Web intensive activities.

2. International presence.
3. Knowledge intensive processes.
4. Technological drivers.

Several meetings and efforts were done in order to find a formal-company and work with practical-cases. After formal presentation the BIF got interested in the general contents of the thesis and opened the door to explore how two current projects could integrate more online participation: WPP and InnoShip. After theoretical background investigation and meetings with some of the stakeholders of WPP and InnoShip two main efforts followed. One was a Wiki based in TTY's intranet and the other one an online-community.

#### *4.1.2.1 Wiki*

When it comes to the Wiki the efforts were directed to InnoShip project through Tampere University of Technology (TUT) intranet. When creating new main-level webs these are restricted in TUT-Wiki, or in other words only admin-users can create a new Wiki that would give visibility in the wiki-intranet at TUT. It is also possible to request a main level wiki with an internal form at:

<https://wiki.tut.fi/WebRequests/NewWebRequest>

The wiki in TUT-intranet works mostly like any other wiki except that an authentication process takes place before letting external-users to get in. When it comes to the generation of special functions in wiki environments IT-proficiency is required. In this case the aim was to make an individual wiki in order to get a group of people to interact over InnoShip matters. The main concern of this wiki was to protect the identity of people as, in preliminary discussions, it seems that people might have been unwilling to write something in the wiki if they would have known that someone with a higher rank than them was also participating in the same forum. For this particular case it was decided that the identity of participants should not be disclosed until all interactions take place, while keeping the access relatively easy and private:

<https://wiki.tut.fi/Crowdsourcing/>

A coopertition-model for BSR InnoShip was addressed through this internal Wiki at TUT. The aim was to address different areas, and successfully take into consideration different views by bringing together different sets of people that are required to cooperate and at the same time to compete in order to achieve the goal behind InnoShip. It was considered that slicing the project by perspective could help to address the



problematic from different fronts: politically, operatively, technologically and so on and so for. In this sense, areas of knowledge can be separated in order to bring a clearer view over the big picture and find relevant linkages among them. InnoShip's crowd includes authorities from public sector, academics and business men needed to settle down issues related with shipping-landing history and trade-offs of port operations in the Baltic Sea Region. The main objective of the interactions were to figure out if there was an un-exploited business opportunity simply because the relevant parties have not gotten the chance of compiling-information in an impartial ground in the past. In the same line, the intention was to see if there is a way forward among participants to either settle down collaboration or find out a current failure. Along with the interactions it was intended to find key people that in the group's opinion, are needed to speak-about and to push-further certain topics. In this sense was expected that the size of the group will grow in number, and hopefully also in quality. In the particular case of the wiki some functions were designed as follow:

1. Simplified page view template (no history link in page footer).
2. User's comments are shown below each base topic (the topic they are expected to comment).
3. Comments are stored in separate topic (page), one for each base topic and user.
4. Separate comment-topics are private by default, only user-self can view them.
5. New user groups for access control.
6. Listing of all comments from all users for specific base topic.

The above mentioned functions are available in the following link:

<https://wiki.tut.fi/WikiHelp/Crowdsourcing/WebCrowdsourcingGroups>

Anonymity is also quite hard to achieve in TUT-wiki, because all users are required to have personal user accounts. It is possible to hide the contributors' identity to some degree, but not entirely. This was main concern to manage identity of contributors in the interface in order to let them speak freely but still know who they are. In other words people should be able to speak without fear that someone with a higher rank easily identified them and therefore, cut the contributions from others or even worst provide mimicked-contributions; but still be able to validate the source of information from back-end. Invitation form for users that can't use direct login is available in the following link:

<https://wiki.tut.fi/System/RegisterExternalUser>

In general the functions are pretty straight forward, but still a basic understanding of wiki nomenclature is required when participating. Now when it comes to the design of special functions IT-skills are a must. Though the library to get to know all the applications is vast, the time required against the deadline of the project was prohibited. Therefore it is require to work together with an IT-expert already deeply involved in the wiki environment. In the particular case of “show just my own comments until someone turns switch to reveal all comments” it was not possible to be accomplished. It was not possible, because with Foswiki software, the wiki platform, is possible to program quite sophisticated applications with wiki macros and pluggings, but it requires some skills and effort in reviewing the mentioned library. After wiki-completion the following stages were suppose to follow:

1. Invite people deeply involved with the project to structure the information and locate other people from which it is required to obtain feedback. In other words, to make the items that will be addressed in stage number 2.
2. Get feedback over the items, voting over content disagreements, moderation and splitting up items further if needed.
3. Get lines of action and open up participation.

This experiment was also related with impersonal trust, group intelligence and how crowdsourcing and pyramiding could complement each other. Though, the permission to contact the people already involved in the project was never granted from management. It was advised not to contact the people because the project was already running over another information management-tool, and this might have caused some confusion among participants.

#### *4.1.2.2 Online community*

When it comes to the online-community web-page, this was created as an attempt to help the theoretical part of this thesis; but also out of the concerns about third-parties' hosting. In other words, the online-community was created to explore the technical and the practical use of tailor-made web-sites in order to gaher open-audience participation. The practical use of the online-community was to gather opinions over the content of the theoretical back-ground, to get further references, to give exposure to the projects from the BIF, to even going to the extent of spotting misspelled words, and other un-explored. In terms of theory, the online-community served to put in practice some of the ideas coming from the literature review.

Currently there is so much offering for software-development that is difficult to choose with what programming-language and which IT-personnel to work with. In the

case of the web share-point of this thesis, it was decided to get IT-support from an IT-freelancer sourced from freelancer.com. While looking for the freelancer to develop the web-site, questions about how to make software-development and how to select the right candidate arose. According with Pressman (2005) software-development should consider the following aspects:

1. Work Tasks.
2. Work Products.
3. Milestones and Deliverables.
4. Questions and Answers check points.

Nowadays a call to participate in a project can take place in many online-sites, from social media to online forums, university intranets like in the case of the wiki, magazines, news-papers and blogs; the alternatives are many. One major concern with third-party sites is that information-management is limited to their domain and their architecture. In other words, the management is limited to a third party, and therefore changes, including the purposes of use and decisions over the information can also be directly influenced by this third party. Furthermore if enhancements or changes are needed to reach the goals of determined project the application is as well limited to the current functionalities of a particular site. Also information-safekeeping can be constrained to their own privacy policy, which can be at any time changed. In the other way around when the site and the hosting are proprietary the site can be managed in a most convenient way, though the information is still hosted in an external server also subject of a third party if not several. Yet, having proprietary servers can be a matter of high cost; but at least when having direct access to the hosting not only the content but the domain itself can be monitored, in other words the activity of the site can be tracked down with the help of external services such as Google analytics (Appendix 7) by making a direct-link with the domain. The domain of the online-community developed for this thesis was:

<http://crowdsourcingthesis.com>

This domain was hosted in [www.godaddy.com/Domains](http://www.godaddy.com/Domains) which offers both; domain registrations and hosting services. Also to avoid scalability issues it was considered Amazon simple storage service (Appendix 9) but it was not possible to run it with pages with dynamic-content. The following subchapter is focused in the scouting and selection efforts that took place to select the freelancer meant to help in the development of the online-community and some of the technical implications.

### 4.1.3 Scouting and Selection

Web development is directly related with transmitting an idea. The hosting, databasing and URL are the foundations of the whole project. This base is followed by the designing and coding of the web-page, which is the architecture of the share-point. In addition a web-development that is suppose to host a web-community requires work related with pitching and group targeting in order to get participation of experts in the community. It is a crucial matter to have a criterion to select the experts to develop a potential partnership, starting with the person in charge of the coding and designing of the web-site. In the particular case of IT-experts Hoch (1999) says that during the selection-process intellectual capital is a major stake. During candidate-selection the portfolio can work as a hint, but more in deep inquiries should take place, résumés and CV reviews, even references' validation and certifications can serve as deciding points. Also video-conferences in Skype to interview preselected candidates can help to validate matters in real time.

While working in the hosting and domain, collaboration for IT-support was searched through a website called freelancer.com. According with Alexa (2012) freelancer.com is a global marketplace for online and freelance-jobs where businesses connect with independent service providers and freelancers to outsource their work. Freelancer.com is the largest outsourcing marketplace in the world, connecting over 4.3 million professionals from 234 countries and regions. Through freelancer.com people can hire freelancers to do work in areas such as software, writing, and data entry. The average job is under US\$200, making it cost-effective for small businesses. When making the call in freelancer.com (Appendix 1) the response came back in a sort of bidding from several freelancers interested in the project. The call got response from 22 freelancers. Figure 9 shows details of the respondents by country, also giving the option to sort out by initial milestone.

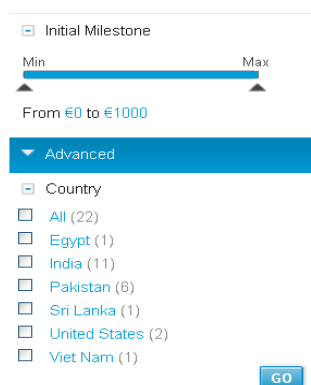


Figure 9. Graphical representation – Response of freelancers by country.

Also each freelancer has the option of providing examples of their current portfolio and running-projects. Each freelancer can make an individual counter-offer while the webpage also displays recommendations from previous services, the areas of expertise they have, certificates, among other general information that can help in the decision making process when selecting the freelancer. Figure 10 show an example of a graphic-representation that helps to understand more about the IT-skills and activity of the candidate in freelancer.com website.

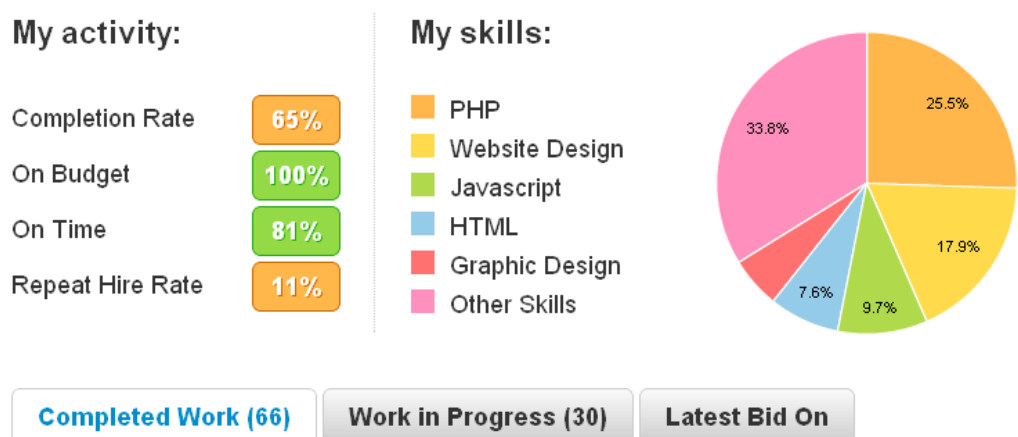


Figure 10. Graphical representation of skills and activity (example).

Most of the freelancers sent several webpages' links that were neither representative to the needs of the project nor working properly. Also in some cases there were messages coming from these links showing that the site was hacked by someone, or even warnings from the antivirus-program preventing of malware coming from these links. The revision of portfolios therefore might be risky and it is also time-consuming, even only for 22 offers. There were offers out of budget, not relevant to the goals of the project, purely money oriented, lacking professionalism with no specific comments about the needs of the project, and in general the impression was that the people in the freelancer.com community were not very professional. Some freelancers were offering technical support after projects' completion, and it seems this is what they are looking for. In other words, they want to sell a product, that you start working over it, and somehow hook-up clients with their system and charge monthly fees to prevent your site to go down, get viruses or simply for software updates. In general the offering was rather amateur; in some cases with freelancers looking to have more experience than others. In many cases the offering was not representative to the needs of the project. In the particular case of this thesis it was of great relevance the indicator regarding the completion-rate of the project as of course the project it is meant to be finished, and also the amount of projects in progress; though it might be the case that behind one single

profile there was a whole team consisting of several people designing and coding the program. It was also possible to invite to bid some specific users but this function was not used. From all the bids not a single one provided a proposal on how the work should flow. At the end the selection was based in a mix of programming skills match, the portfolio, the completion rate and projects in course.

## 4.2 CrowdSourcing Thesis

This subchapter presents experiences acquired during construction of the website. Also experiences obtained during deployment of online-community, as well as cultivation of online-community are shared. Some benefits and risks that projects similar to the cases that were studied in the BIF are identified.

### 4.2.1 Tool Development

It was decided to request asynchronous java script with extensible markup language (AJAX) for the development of the site because most successful networks and applications have been developed under the same framework (i.e. Facebook & Google). One key point of the infrastructure of the site was to make profiling of the people participating in the content in order to validate and spot expertise related with the subject. One option to make the validation of users is to make the link through existing networks, though it might be that the profile of users in existing networks is not relevant to the goal of a certain-venture, in our case to spot expertise; but for projects looking for heterogeneous contributions can be an option. In order to validate expertise of specific topics it is possible to make a small questionnaire relevant to the content of the venture (Appendix 5). The implementation of this kind of control is subject to review by the moderators of the site, as in some cases users would place irrelevant information just to get access to the community. Then if everything is clear, access can be granted to modify content, create forums, open new-discussions and contact other members of the community directly with private messages. In the particular case of <http://crowdsourcingthesis.com> all content in the website was available for everyone to see, except for the information in the inbox function. The idea was that the content of the webpage would be maintained and enriched by registered-members as only registered-members could add and remove content (make comments, like comments, reply to comments from other members, open discussions in the forum, edit their profile, upload and download related documentation/photos, among others). After freelancer's selection a prototype of the home view page was a part of the further details that were delivered to the freelancer. In appendix 13 it is possible to see the prototype of the home

page view. After further details delivered with the selected freelancer it was agreed to work under the following flow-structure:

1. Questions and Answers (Q&A) about the project.
2. Designing (graphical interface, colors, fonts, pictures, and other matters related with the design with Q&A-checkpoints until completion).
3. Functions (open architecture, open structure, open APIs, and other related with the functions with Q&A-checkpoints until completion).
4. Deployment (invitation system, basic content, create your-profile and other related with the deployment with Q&A-checkpoints until completion).
5. Running (upload the site online, testing, create my-profile and other related with the running with Q&A-checkpoints until completion).

A series of Q&A-checkpoints followed detailed information of the project, which are available in appendix 3. The site gave all the functionalities that a common blog offers for editing new/current posts like in <http://www.blogger.com>. The site gave the opportunity to create and sort out discussions, comments and news within time and most liked ones too, though this tool failed several times during testing. There were also challenges, some challenges with the graphical representations of the most mentioned words and conversation maps that were also intended to be developed but were never fully implemented. Please see appendix 12 for examples of graphical representations of the content: conversation-map and word-map. One of the things that were very time consuming as well was to change one of the specifications of the projects, which was the ability to sign in with Facebook accounts. This was decided to be changed, because it is difficult to validate the source of information, and in the particular case of crowdsourcing for collaboration in knowledge intensive projects it is important to be able to validate the source of information.

#### *4.2.2 Tool Deployment*

It was decided to use Godaddy ([www.godaddy.com](http://www.godaddy.com)) to get the domain and host the site. At the beginning only the domain was obtained from Godaddy and, before getting the hosting in Godaddy we tried to use Amazon storage services (<http://aws.amazon.com/s3/>) as it charges only in terms of the usability of the website. Meaning that in Amazon storage services if someone visits a webpage once in a day, only that one-time per day is charged while the whole point was to get the infrastructure for the data transfer in the same way: only in usability terms. In other words the capacity used in Amazon storage services is only rented when needed without reservation of resources which are only requested when resources are needed. This also taps in capacity constraints either in case demand gets hyped or the numbers of visits per day

grows exponentially which is a great deal especially for small startups. Yet the main challenge with Amazon was that it was not possible to find how to upload the page because the programmer needed to have a MySQL server to create the data base with tables. In Amazon storage services the things work as a one big repository called “Bucket” where information is placed, but this bucket did not outline a regular server-table or a way to connect information in the bucket by using MySQL which is needed to have multi-users’ access. Direct support from Amazon was requested but they were very limited with the kind of connection query we were aiming to have, despite the fact that the freelancer had no experience in using Amazon storage services and this was not specified at the very beginning. Even though Amazon is using model view controller structure the creation of the inside part was rather difficult, so we ended up using Godaddy hosting services with a monthly fix-fee.

The deployment in Godaddy was relatively fast. Only after deployment the functions could be tested, and this is the moment when the environment was actually visualized as a whole. After deployment what followed was testing, testing and more testing. Most of the inquiries following the deployment were focused on the functions, if they were working or not, and many last minute changes needed to take place. The testing of functions and processes in a webpage are resource-consuming tasks, and furthermore when something seems to be working well something can be moved so other functions already working may fail. A tool that helped a lot to make the testing and the review of the web-page was TeamViewer ([www.teamviewer.com](http://www.teamviewer.com)), which allows remote-access to share computer resources with someone else in real time. In the particular case of the deployment of the web-environment TeamViewer was used to make comments in real time with the freelancer together with the help of Skype just right after reviews with questions and answers were sent. In appendix 14 it is possible to see the banner of TeamViewer.

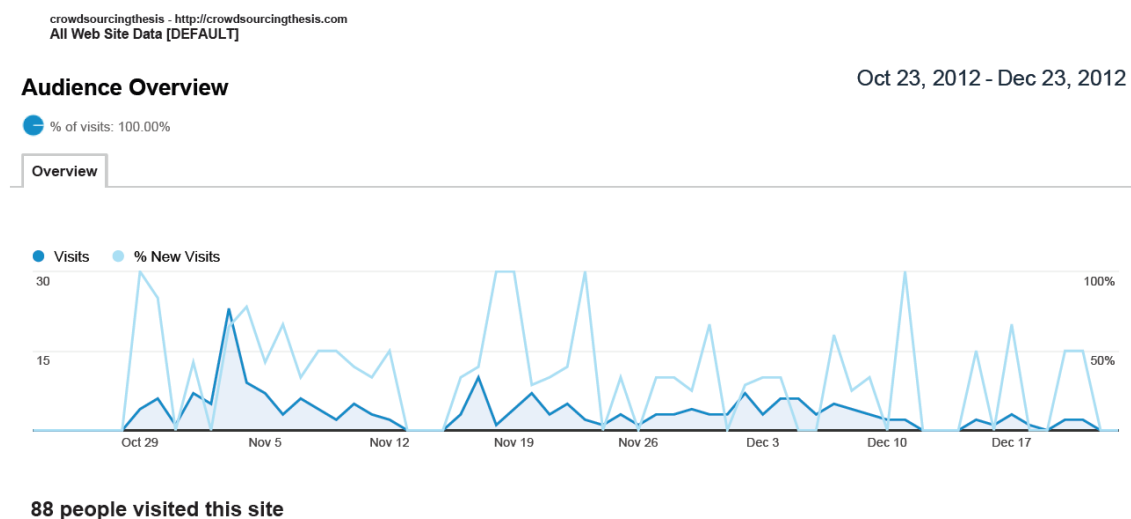
#### *4.2.3 Cultivation and Marketing*

After the basic functions of the website were running, a Beta version of the community was launched through personalized invitations to some of the authors read in the literature review. Inviting people to participate directly and giving reasons why their participation was considered to be of value in the project was an approach considered to be the one with the most promising results, but in real terms it managed to gather no input from targeted experts. Also few direct inquiries about the invitation followed via electronic mail. Not only members but everyone was able to invite someone to join the site through the invite-function in the website. Also some classmates and friends were directly invited but not through the invite-function but with direct emails or occasional chats in other networks’ applications. At the end it was possible to gather 18 members in



the community. One risk difficult to overcome with the invite-function was that the invitations might have ended up in the junk-mail of the invited-people.

After the reception of the invitation, if a user wanted to join the community they were supposed to answer a questionnaire and send it for revision. After sending the questionnaire with their answers an approval was either granted or rejected from the moderator of the site after revision. The questionnaire with the answers was sent directly to the email of the site's moderator. This was a learning process therefore there were neither right nor wrong contributions so all the applications were accepted. Everyone who joined the community was able to re-edit their answers, make comments to certain topic, and propose new topics. Also a forum to report bugs and malfunctioning of the site was opened, but it got no participation. Marketing support around the project and efforts to gather people already involved in the subject were carried out in order to increase visibility of the project, bring leverage to the thesis-process and help to create the community. Many of the efforts regarding marketing took place in other well established networks such as LinkedIn, Twitter and Facebook. Inside these networks there are groups with people related with many different subjects including crowdsourcing. In appendix 4 it is possible to see some of the marketing efforts that were carried out most of them during the last week of October 2012. In Figure 11 it is possible to see that just after making marketing-campaign the community activity triggered to a record high.



*Figure 11. Google Analytics - Number of Visitors vs. % of New-visitors.*

It was possible to see that after marketing efforts the number of visits to the site increased considerably mostly in terms of new visitors, and returning visitors with one week difference after posting invitations in external networks. Though the increase in

the page's activity did not reflect in the amount of new members, this can tell that either the offering of the site was unattractive or the signing up process was too complicated. All the advertising and invitations to join the site were addressed towards groups, people and other user communities already involved with crowdsourcing. There were many challenges affecting registration, participation and collaboration of the online-community. As part of the practice during community interactions and community built the hardest part is to get people motivated and involved in the project. In addition to the intrinsic motivation of contributing within a subject where most of the invited people were identified as current practitioners, an extrinsic monetary reward was offered by letting people to suggest how to use a remaining budget of 140€. The idea was to get suggestions of how to use that budget in a crowdfunding fashion, and select the idea out of a like-dislike counting in the community website after pre-establish deadline; but then the page was lost before the deadline because unpaid-hosting despite the fact that the like-dislike function was also having some issues. It is actually true that it is not easy to predict how intrinsic and extrinsic rewards will affect participation (Bartol & Srivastava 2002). In the case of crowdsourcing the main motivation should be intrinsic when it comes for instance to participation in projects of public interest driven by social duty and the reward itself can be a public good, yet all results can be measurable and rated. The availability of tools, resources, upgrades and potential of becoming part of an earnings' model could increase motivation towards a particular venture but only if it is backed up by a well recognize brand or company. According with Antikainen (2011) other motivations to participate are:

1. Interesting objectives and concepts.
2. The possibility to influence product development.
3. New viewpoints.
4. Fun.
5. Sense of cooperation and similarity.
6. Constructive atmosphere.

To confirm results it is needed a moderator, especially when it goes to qualitative results; the crowd itself is in charge of rating. For projects related with regional-development and civil-impact an authoritative validation from experts and steering committee are still needed. Now here it is important to highlight the chances of activism, hyped subjects and information bubbles that could arise around a project aiming to get crowdsourcing-contributions. When it comes to ventures focused on commercial matters an extrinsic-model with clear individual-rewards might give better results. According with Harper et al. (2008) in crowdsourcing sites for processing tasks a fee-based model seems to be the one with the best results. Though still seems to be challenging to decide the right fee for these kinds of services (DiPalatino & Vojnovic 2009). Antikainen

(2011) suggests that the reward system should take in consideration both, extrinsic and intrinsic motivations.

#### *4.2.4 Acknowledgements*

Through information, if presented coherently, it is possible to communicate and transmit knowledge about determined phenomenon. The information becomes relevant when it is possible to see how people react towards that given piece of information. Data over information allows seeing how people receiving the information decide to react. Therefore data over information is a way of understanding and creating meaning regarding the impact of a certain piece of information towards a determined group of people. In other words, certain data could be used as a key performance indicator (KPI) to serve as measurement in order to guide the efforts of a particular venture. KPIs are a way to measure efforts in order to repeat what seems to be working and to avoid what is not. It is also possible to read data over data, called metadata, which gives deep perspective regarding existing data which allows understanding what data is representative or has to be modified to repeat certain desirable behavior mostly by presenting and sharing information in a determined way. For instance an average of how long a visitor stays in a certain page tells if the page is attractive or not, if visitors are even reading the content and/or interacting with the interface at all. Other indicators tell how many visitors are returning-visitors to the page in comparison to new-visitors; which can give a hint of active users. Also in the case of returning visitors it would be possible to say that this could be an indicator that the content of the page has somehow something that offers value; whereas the amount of visitors is correlated with the amount of new-members. With these kind of indicators it is possible to monitor which parts of the domain are making users either to stay or to leave the page, what the most visited page of the site is, and in general how many people are visiting the site in comparison with previous dates in order to check how near we are of getting a crowd in real terms (5 000 active users).

In general these indicators allow us to measure the impact of actions and changes over the page within a time-frame, because whatever that is not measured it is unlikely to be improved over time. For example, an indicator telling the country of origin of visitors can help us determine if the page should be translated to some particular language, or even if the layout of the site has to be modified or shortened if there are areas that are not being visited at all. In appendix 7 it is possible to see some of the analytics from Google reflecting the activity in <http://crowdsourcingthesis.com>. One thing that would be interesting to realize, in knowledge intensive sites with a lot of content, is what visitors are actually copying from the site as irrefutable fact of finding

information useful, yet Google analytics does not provide this kind of indicator. Some of the most useful indicators in Google-Analytics seem to be the:

1. Most visited pages.
2. Engagement of visitors.
3. Referral of traffic.

By knowing which page is the second most visited page after “home”, it is possible to determine what is catching most of the attention of visitors, the first impression; whereas it allows realizing over time which pages of the site are of no interest. With the engagement indicator it is possible to realize in which part of the environment front-end users stay most of the time and how long, for instance it might be that users just get in and leave right after 30 seconds or they actually stay some time to read the front page. With referral-traffic indicators it is possible to determine which external networks and which external communities are the ones most susceptible of responding to marketing campaigns and where the most active potential users related with the subject of our interest are, in other words this gives a glimpse from where users might be coming from. Generally speaking, key performance indicators allow to screen and to find the spots where the resources should be invested, and help to realize if we are achieving the goal (5 000 active members) under the present framework or if something different has to be done.

As a part of the acknowledgments one very important thing to mention is that it was discovered that the whole environment that was supposed to be coded from scratch was actually already a module-product in use in other domain (<http://huddle.themedemo.net/>). This means that the whole infrastructure was not developed according to the provided specifications, but specifications were adapted to an existing-product. This was very a shocking thing to realize, because the design of the environment and the IT-infrastructure are directly related with the tools of the site. Alongside with this fact the site presented many bugs before completion, and during BETA-deployment advertisements from unknown users were showing. Then after these bugs started to show the freelancer started to try to sell technical-support to prevent the site from failing. The fee was 100€ per month but for a site that did not work and could not gather participation it was difficult to accept the offer, so the negotiation went in relation with the amount of active users: 0,02€ per user per month so after 5 000 users the freelancer could get the requested fee. It felt really much as a sort of opportunistic behavior, despite the fact that the code was never delivered. The response to the offer was negative.

### 4.3 CrowdSourcing for the BIF

From previous experiences in this chapter are shared some of the things that could be done better in order to ensure better implementation in the BIF. Some considerations that the Baltic Institute of Finland could take into count when getting open audience contributions are also shared. In general this subchapter gives some recommendations to the BIF to increase success chances of receiving relevant expertise in order to enhance collaboration and enhance partners' collaboration around the Baltic region.

#### *4.3.1 CrowdSourcing in BIF's Cases*

Both of the cases explored inside the BIF had a strong steering committee and people well involved in the goals of each project. Through a public online-interface it would be possible to centralize the efforts of the committees and serve the general audience in order to support the goals of each project. But this seems to be an effort in the change of the working culture, as many important stakeholders prefer to keep things in paper and are not IT savvy. Also it is preferred to obtain knowledge from nearby sources, as proximity makes handier to double check things. With crowdsourcing what is intended is to extend the scope of the projects, with a strong base of local partners that can sustain the collaboration. For instance WPP already has a share-point that has been very well unified by the BIF in collaboration with the three main universities of the region. Though with InnoShip a clear conflict of interests seems to be a more complicated thing to address and perhaps a clear hint why the process should be more open and transparent. It is just a matter of agreeing how each matter inside the projects can be presented publicly at the community level; even including splitting the projects in different areas according to each particular need. The only way of attracting talent is by being open enough to receive the opinions of the majorities, even though 90% of everything would be crap, we still need to milk the cow to get the cream. By receiving open-audience contributions the chances of spotting expertise increases and at the same time projects can get the leverage from the public opinion and promote the goals and benefits of the project by giving awareness and sharing information. For instance in the case of the cooperation challenge facing InnoShip for diminishing pollution it may certainly rely on the capacity of the participants to put aside individual benefits in order to achieve a greater common regional-good. Crowd participation could gather consent, acceptance and approval by simply giving visibility to the decision making process. Here the BIF plays a main role as moderator able to take matters from a general perspective to a specific solution if not implementation. But in order to secure success it is essential to be able to spot people-capable of implementing and proposing plausible solutions, an isolated solving process limits the possibilities of finding other external synergies and enrich them with critic. This requires guidance, openness and arbitration

with the capacity of avoiding reality blockages in order to allocate resource based in measurable indicators.

Communications, updates and other related activities to report advances and results are key elements to attract public attention, more users and increase the chances of polishing expertise if not finding new experts. This kind of open-collaboration demands consensus among the base-community, and create a positive pressure of sharing information related with the project and look for synergies. Constant updates and advances are also a way of making sure that the project is developing and it also helps to reduce the risk of failure while increasing the chances of identifying other required-resources or the necessity of splitting up the project in smaller units for a more adequate handling which might have not been considered at the beginning of the project. Projects of public interest should look to get decentralized contributions from either individuals or organizations but consider them as a whole. The aggregations of information should be centralized by the BIF in order to be able to conduct an active-participation based on facts, in the particular case of the BIF as a NGO placing regional development ahead individual interests. Therefore it is crucial to have a mechanism able to aggregate and to communicate results publicly at any time, with open ended front-ends able to embrace external participation.

#### *4.3.2 Considerations*

An online-environment has to be tailored to the requirements of each project. Only proprietary environments can be monitored and modified according to the needs of each project. Before investing resources in an online-environment to host a project, it has to be agreed that the site will be supported and monitored by the steering committee with a single access for the back-end. Guidance and an active participation from the steering committee in the front-end are a must. The way a site or sites run to help reach the goal of a determined project is a discretionary-decision that has to be discussed internally. Here to stress a point that in online-environments expecting to receive open-audience contributions, it is not possible to manage people. The managerial focus goes towards the site, by providing updates, mash up input, tools, guidance and results. Openness, transparency and visibility are also key factors directed affected by maintainer's facilitation against user's motivation; secrecy discourages participation. It is also important to realize the role of the crowd before hand, the most common ones in use nowadays are:

1. CrowdLabor.
2. CrowdVoting.
3. CrowdFunding.

4. CrowdCoopertition.
5. CrowdCollaboration.

To get the cream we still need to milk the cow, so expect that 90% of external participation will be milk; yet with milk it is still possible to make butter and cheese. No matter if the crowd is expected to work as a co-creator of new innovations or just to click like or dislike, in current business-models selection and R&D are being shifted more and more outside companies' boundaries. This shifting takes place thanks to the relocation of resources to develop tools and guides to educate the audience which can become either experts or clients. Dedicated sites can serve the purposes of particular ventures if tools to support the returns can be developed. Do not focus on the process, but in getting the desirable results with the help of the crowd, sometimes efforts are confused with results; avoid this and stitch with the monitoring of actions in relation with the indicators coming from the front-end access. Mark events and check results as a way to realize what works and what does not work. Focusing on existing solutions rather than developing new ones is economical; but it is important to consider that new challenges may require as well new competences. Here the decision goes in the direction of investing resources to learn how to use a ready-solution or trying to make a tailor made solution. The problem comes when the solution looks tailor made, but is actually not, so it is needed to have a critic-eye and ask for second opinions.

When planning collaboration through an online-community Antikainen (2011) suggests taking in count the following considerations:

1. Stress principles of user motivations → why should I bother?
2. Maintainer's active participation is needed → Profiling, discussion forums, chat rooms, voting system, and others.
3. Solid rewarding strategy, also includes maintainers active participation → Extrinsic and intrinsic.
4. Guidance and tools → Better tools are part of the guidance and also motivate.

It is a mistake to think that by installing a web interface things will work out, especially when talking about strategic development levels. Constant pitching, monitoring, and guidance are needed in order to make the online-environment to work out. Networking is essential to support site-development, and also to find the right communication channels. Back-end access can be also multiuser for partners and experts engaged in the venture so key people can have the same understanding of the objectives of the venture and make or suggest modifications if needed. Environments therefore have to be flexible towards innovation and work only as guidelines to enable collective thinking, intelligence and creativity. Though when it comes to mechanism such as the

“like” function the visibility can become blurred or not representative, this can be a dilemma of hierarchy and reliability as normally the first post gets the most likes which is a disadvantage for new-comers and it is also what is happening with old communities like Wikipedia that defend status quo over reliability. It should be considered to make a contingency plan for identified-risks that could stop the venture from further development.

#### *4.3.3 Recommendations to the BIF*

The BIF’s activities require an open-ended online-medium to share information and give the possibility to replicate. BIF already has an online webpage where projects are explained in general terms, but the infrastructure does not allow visibility of external participation. With an open-ended webpage the BIF should be able to ensure that all (or at least as many as possible) stakeholders and experts related and/or impacted with a project could be updated and express their opinion. In projects that require making strategic-development it is recommendable to make real-time participatory-pools to clarify concepts and if possible even test skills and capabilities with small problem-solving. Participatory-pools can also help to test motivation towards certain topic before making any further investment. It is a must to publicly announce rewards and results in the website. The BIF could benefit from brainstorming among different potential subjects related with regional development by facilitating and promoting crowdsourcing forms of collaboration and knowledge exchange with current partners; even just as a part of school projects or semiannual feedback with other institutions. When trying to transmit the idea of what is intended to do in a project, things should not be taken as granted. Especially in environments where face to face communication does not take place it is crucial to be as specific and succinct as possible, and if possible give graphical representations to deliver a clearer idea. There should never be room for interpretation as the only way of dealing with uncertainty.

After knowing what the next project would be its crucial to get the clearest and most concise view of what is needed for project's success. In general the BIF needs to have as many as possible “smart guys” linked with specific areas of each project. This could be done through dedicated web-sites by project. If the project is too big it is necessary to either subdivide tasks or areas of expertise in order to present the project in digestible chunks. In dedicated-sites if registration is needed, it should be as light as possible. For instance birthday for registration should not be mandatory, as many people do not want to give their birthday and this may hinder participation. Personalized invitations are still believed to be the best approach and if there is no answer, it is always possible to make a direct inquiry by email in order to pull participation. If someone wants to copy something form the webpage is ok, but ask for registration.



Keep releasing information and send the most relevant updates to registered members once a month via email. Keep in mind that it is only possible to manage the platform but not the contributors. Focus the management in what is possible to manage, cultivate the community and guide the crowd with the help of the base community. For the management of a community it is important that all members can be able to follow the information in the same way, therefore it is important to tag the information as iconic, symbolic or enacting. Iconic representations are the most general information a site can provide, symbolic are the ones that can get a numerical value and enacting are those that have been agreed among the community as ways to proceed and to communicate different-matters.

If possible, make an inquiry of current partners already using online-communities. Results analysis with existing partners can help to understand how open-audiences contributions are being integrated in their structures. This could increase chances of success, before making a proprietary online-community. It is needed to promote the projects in well established communication channels, and this is a task that has to be done on regular basis. For instance BIF should invest resources to develop its ability of providing guidance and reinforce the channels to get different parties connected with each other in order to develop further. It is recommendable to make a bit more visible the BIF's partners, and let them build stories of success in order to bring more visibility. In these cases it is crucial to be able to communicate horizontally with different stakeholders that might be interested in trying/learning new-things. To procure open-audiences the management of the BIF should focus more on:

1. Scheduling and managing IT-resources.
2. Creating a sense of open and transparent collaboration.
3. Getting people in different institutions to know each other.

BIF has to make profiling of potential audiences by niche, and type of institution; for instance by universities, by private sector, government and so on and so forth. By niche in terms of their expected function or area of interest: click user, hobby user, expert user, motivated user, transactional user and/or partner user. BIF has to play the role of middle man functioning as an aggregator of cross regional collaboration, and assignation of roles has to be one of its main tasks together with the procurement towards and between institutions which are different in nature. In this sense BIF should be the apparatus between the crowd and the goals of certain development. BIF should try to identify maintainers, promote innovation and spot experts at a global scale through pyramiding and enhance project through dedicated-sites. In this sense public projects should be open to receive donations through crowdfunding and microcredits. The monitoring of projects' advances and project's accomplishments should go through the

BIF infrastructure to the extent of creating honor-lists, share publications of successful cases and link other networks globally with foundation in developed-expertise. Crowdsourcing could also allow finding new areas that require funding around the region and connect capital with entrepreneurship. Join and make user communities where the main motivators are extrinsic based on a civil duty and social responsibility. Intrinsic motives should be still related with matters related with environmentalist and people concern about economical development. Do not stop making networking and teaming up with other regional institutions, think-tanks and other NGOs.

If online-outsourcing of services like designing, software-development and other digital-content is aimed, it is a must to clarify what the deliverables would be and how advances would be presented. It is advisable to ask for deliverables and advances of work in progress in regular basis. Also ask for models and visualizations, pre-constructions that would allow testing interfaces before deployment and it is also advisable to prepare meetings to bounce ideas with the developers. In the case of IT-support, the selection of IT-partner it is crucial and before starting anything or granting a project it is a must to be certain that the person has the proficiency to overcome proposed design and functions. Proficiency can only be truly proven after project-delivery but a strong proven record, a CV reviewed through video-conference or face to face if possible, and a rigorous referral process in which it is needed to pick up the phone and make a couple of inquiries with previous customers can help a lot. Take in consideration that web-pages require IT-support able to deliver and maintain user-friendly and graphically-neat ways to get participation out of the targeted-crowd; also to make sure that the information is presented in an attractive way. In general when it comes to areas of expertise within a project, all deliverables should be tested and make sure they work. For example in the case of web-development having a pre-understanding of the coding language helps but if the task is being sourced, it is a must to check that the requested-functionalities work well. Before selecting an external party it could be beneficial to share further details in order to understand better how the requirements would be fulfilled in a counter-proposal, and also to make sure that only the best individuals are selected.

In the case of WPP profiling and screening for better understanding of the opportunities and needs of the main groups involved in the project could bring further leverages. By bringing information of international students available for instance in the summer-time during their first year of studies and summer job-openings could help to have a first approximation to the Finnish work-culture, and of course get the chance to practice a bit the Finnish language. It is just a matter of being open enough to receive the information and then share it with the relevant parties in order to connect them and make economy. The information technology to make this kind of information-linking

already exist, so it would be possible to identify and acknowledge matches along summer-jobs/internships for either Erasmus/exchange or even degree student in their first year of studies. These would require constant pitching, perhaps involve private sector related with recruitment. In the case of InnoShip higher visibility, linking official documents [i.e. letter of commitment by the Danish Maritime Authority] and allowing public comments on matters related with the project could enhance partners' collaboration towards this regional innovation process. For this kind of collaboration it would require email registration, validation, and revision before publishing and a small survey to allocate audience in a similar way than with <http://crowdsourcingthesis.com>. An example of profiling could be "steering committee", "key maritime stakeholders", "decision-makers", "policy makers", "authorities" and "potential end-users".

## 5. CONCLUSIONS

Crowdsourcing taps in the issue of underused or new talent. According with the revised literature, crowdsourcing could be seen as complementary block to web-based collaboration-theory. Crowdsourcing could be seen as the next step after a user-community gets dynamic, diverse and big enough towards a particular subject. Yet at this point crowdsourcing might be an extravagant concept as users of the whole WWW could be seen as a one gigantic crowd; but the question of harnessing the users able to contribute in particular-purposes by getting a reward in return gives room to create more specialized online-environments. Crowdsourcing could be also referring to similar concepts such as open-audience-development, collective-wisdom, human-as-a-service, disposable-workers, click-workers, productive-hobbies, collective-smarts and coopertition among others. Yet crowdsourcing can help choose and promote innovations when collaboration can be attracted and consistently-monitored.

### 5.1 Summary

The objective of this thesis was to find expertise by applying crowdsourcing theory in order to enhance partners' collaboration in world-class innovations. Unfortunately this thesis-work was far from finding any expert and most of the efforts were directed towards understanding the implementation of concepts and how these could host and/or create expertise in online-environments. Despite this failure, there are currently enough examples working in practice, as well as enough literature telling that crowdsourcing can positively procure experts in order to impact the conception and development of global innovation-ventures; but it requires more resources than the ones this thesis-work could provide.

The reviewed management processes and related literature suggest that crowdsourcing together with pyramiding allows easier location if not the creation of experts, while lowering investment-risks, and providing leverage in decisions-making processes. Crowdsourcing also increases chances of adoption and participation from experts in organizations while also serving to certain extent as a marketing-tool in a similar way than with open-innovation practices. This thesis with the help of information technologies presents crowdsourcing as the next brick in open-innovation and online-communities theory as the resulting-practice for hyped-innovations that have been backed-up by a base-team deeply involved in the development process. A middle-man organization like the BIF can effectively find relevant-contributions needed to overcome current global challenges with the help of information technology by

bouncing expertise in-and-out from the crowd and represent an impartial standing as a decision-maker. Also crowdsourcing can be a powerful breakpoint in the decision making process that could help to increase effectiveness and efficiency for the allocation of best supported market-solutions, while still considering and rejecting unsuitable market-solutions faster.

A well designed crowdsourcing-mechanism allows world collaboration regardless the goal and location with the help of information technologies. With crowdsourcing it is also possible to find dilemmas regarding biased-contributions from external independent individuals, overcome activism and laws boundaries among others. Well educated online-crowds can provide insight, enhance collaboration, and be pointed in the right direction in order to create a greater economic value in the form of an innovation.

## **5.2 Implications**

Particularly, there are plenty of interchangeable concepts around this topic. This is one confusing thing to overcome when studying this subject. A conclusion is that this has happened as part of the fast development in new areas of application that have let practitioners to name the same thing with different names for instance in the case of the environment, public-place, site, web-page, wiki, online-tool, repository, online-community, online-network; all these could be interchangeable concepts. Some concepts are more general and some more specific than others but at the end they all refer to a cybernetic space in the internet from which is possible to access and share information through a device with connectivity (tablets, smart-phones, PCs and others that might be in the market). The same case for other concepts like open-audience-development, collective-wisdom, human-as-a-service, disposable-workers, click-workers, productive-hobbies, collective-smarts, clients-as-a-workers and coopertition

Generally, in a digital era it seems only logical to have a far more coordinated data driven approach and take advantage of an evolving medium. What crowdsourcing essentially tries is to substitute the intermediaries and put them at a minimum with the help of the internet. It is just a matter of connecting the relevant parties in an unbiased way regardless the target of the enterprise which is not really a panacea. In this way users can judge, give tips to make things better, select the winners, be the winners; based on meritocracy and transparency within the system. This has affected the way of contributing in the internet, netizens play the role of book critics, can be actors, show their creations, give a lesson, create, you name it. Everyone can contribute with something, and there are plenty of cases of communities with users looking to get things in a more economical way, and sites that are shaped by users contributions will keep

evolving in communities of informed users. It is still arguable that online-sites that lack the support of a formal institution are based on opinions lacking knowledge, references, experience and therefore credibility. This aspect is directly related with levels of confidence, purchasing power, the ability to invent something and trade it. If a big enough group is able to find and recognize winners from a venture a micro-economy merges. Projects aiming to create new innovations require a pinch of improvisation and quite a lot of talent which are things that cannot be find neither in a recipe nor in a book; inclusion and fair play are the only things that can make the way to sustainability, yet still arbitration at some point is needed.

Online-citizenship is a term used to poll public opinion in civic initiatives through a channel for open governance including people to improve society. In present days a click could be seen as a democratic vote, not only for matters of public interest, but also to shape and polish expertise. Under this kind of framework people can get updated, share and listen about the things of their own interest. The channels and the mediators need to be identified and be publicly available. Censorship and control over the media are still issues to be addressed.

### **5.3 Limitations and recommendations**

The most crucial part of crowdsourcing still is to understand what can be expected from the crowd and what its limitations are. A clear idea of what is intended in the project, and how this would be presented to the crowd are crucial elements for project's success. In a venture, members can contribute in different ways; make sure to split the project in areas able to receive microtasks (click-support) and areas where expertise and intensive knowledge can also be shared. Keep it simple and mind the audience!

The success of crowdsourcing-ventures has to be a fact-based measurement in terms of active-users. Subjects that require high level of expertise are expected to get lower activity as deep knowledge is hard to be approached and even harder to be obtained. Crowdsourcing might suit well subjects from middle level of complexity to matters of either public-interest or purely commercial-interest. If specialization is required, it will be harder to find/make the crowd. Successful-crowdsourcing should be user-diverse in the quest of human efforts' integration. Crowdsourcing should be needs-oriented, constantly searching for existing-solutions, focus in needs without solutions, and get expert-partners to support the interactions. Strategic crowdsourcing is a task of strengthening connections with the help of and within a solid user-community, make parties to have closer collaboration, and share information among them to guide efforts. If playing the role of a moderator it is important to spot the strongest links between parties and provide the needed mediation to make them have more integration.

Crowdsourcing requires a process of self-assessment over time. If interactions around a subject take a long time, the collaboration can get biased and lose effectiveness. Successful crowds should split up over time in smaller collaborative groups, more niche-oriented; this is when it is possible to spot needs, and cultivate solutions at a community level. Profiling and monitoring of performance indicators is the way to go to spot the areas where resources have to be allocated. Spot the lead users and engage the experts, make them partners, and use the expert to implement the collaborative effort. The crowd is the platform to fetch expertise, feed, and become the final user. It is needed to develop more adequate tools for online collaboration. Online collaboration can either be in real-time or asynchronous, with open ended front-ends or deadlines. When it comes to crowdsourcing online tools, it really depends on the kind of contribution that is intended to get out of the crowd. With projects of public interest it is recommended to leave an open ended infrastructure.

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## APPENDICES

### Appendix 1: Project's Description at [www.freelancer.com](http://www.freelancer.com)

Dear IT expert,

I am a student that at the moment is writing his thesis. To help the thesis project I would like to open a website for people to review and share content related with the thesis-topic. My IT-proficiency is very basic in regards to the arrangements at the technical level though I have a very clear picture what I would like to visualize and have as functionalities in the site. So far I know I should get the name of the domain, the hosting from somewhere and then somehow upload the structure that I hope you will be able to arrange. Regarding the domain and hosting any technical advice would be highly appreciated, for instance I heard perhaps the best is to allocate the information in some sort of cloud-service in case scalability is required at some point, even though I do not expect to get many users at the same time, I would not like to lose input because of technicalities.

One key point of the structure of this site is that it should be able to make a profiling of the people reviewing the content. Please see an example of a website with non-proprietary content doing something similar in the following link: <http://businessmodelhub.com>. Most of the content in the website should be available for everyone to see, except some functions that only members would have in order to add content. The idea is that the content of the webpage should be somehow self-maintained by the members that join; and therefore only members can add content (make comments, like comments, replay to comments from other members, open discussions in the forum, edit the wikis, edit their profile, and upload and download related documentation/photos).

It is crucial for this project that the person programming the functions and making the design of the website gets involved in the website once it is running. In other words the IT-expert behind this project will be required to create her/his own profile as a part of the deliverables of this project.

Yours faithfully,

#### **Skills required:**

[AJAX](#) , [Graphic Design](#) , [HTML](#) , [PHP](#) , [Website Design](#)

**See more:** [hosting review](#), [student](#), [technical writing thesis](#) [technical writing](#), [php thesis](#), [picture edit upload](#), [thesis topic technical writing](#), [project thesis programming](#), [technical thesis writing](#), [upload content writing](#), [programming thesis project](#), [structure required php website](#), [programming project thesis](#), [php site structure](#), [project student website](#), [webpage writing](#), [basic forum website](#), [create help documentation](#), [programming deliverables](#), [profile content writing](#), [thesis comments](#), [thesis case](#), [download photos website](#), [basic level programming](#), [documentation review](#), [technical writing thesis](#)

## **Appendix 2:** Face to face interview guide with people involved in WPP and InnoShip

### **1. Introducing thesis project:**

- a. Enhancing partners' collaboration through Crowdsourcing/Pyramiding practices.  
How to attract organizations, and decision makers inside them, to participate in projects?
- b. Locating the right people (experts) to work in a project through Crowdsourcing/Pyramiding practices.  
Hoe to better identify the best potential partners and participants for a particular project?
- c...

### **2. Understanding external relations, practices and expectations:**

- a. Views about regional cooperation and development.
- b. Practices to enhance:
  - International collaboration
  - Networking
- c. What other international offices around the world are doing to help their international students on getting a job? Other stories of success.
- d. Opinions about increasing projects' visibility.
- e. Opinions about increasing general public participation in projects. Example: Business Management Cases.
- f. Academy/Government/Private/Crowd views: relations, interests and interactions.
- g. Opportunities to stimulate internal participation: enhancing and boosting the crowd.
- h. Coordination problem (evaluate a reality that their own decisions would help construct) → Classifying results per segment. (exchange/degree). What it works best for each. What is actually really working?
- i. Current referrals and referring practices. (Pyramiding).
- j. Information-sharing practices and views about aggregation of information.
- k. BIF value understanding. Opinions regarding relationships' management from BIF. What can be done better?
- l. ...

➔ Methodology, approach, and agenda.

### **3. Formalities**

- a. Deliverables
- b. ...

### Appendix 3: Revisions of website development.

August 11th, 2012

#### REVIEW 1

#### FRONT-END

There are quite many things that have to be edited. Some misspelled words and styles.

- *Home:*
  - In the slogan there is a misspelled word it is not “word-class innovations” but “world-class innovations”.
  - I tried the “search” bar with the word “images” and it seems it is not working. There is already a post about cheap-images in forums and at least this should have been retrieved. Instead it re-directs me to search for members. This should not be the case.
  - What is the deal with word-map and the correlation-map?
- *Invitation form:*
  - There should not be this message “invite to increase your group”. The invitation should be “Invite someone you think could contribute or profit the content on this site”.
  - We do not need any “subject”; the invitation messages should include the name of the site together with the slogan. Here also to include the static text I gave you regarding the invitation.
  - Also when sending an invitation a confirmation message should be shown. Something like, “Your invitation has been sent. Thank you!”
  - I tried to send an invitation to my email and it actually worked quite well. I got to my email the following message:

Hi Dear  
**One of your friend invited to joining his network on [CrowdSourcing Thesis](#)**  
 manue.velazquez@tut.fi have send you a message  
 Terve

Please redirect to the static text regarding the invitation: “The name of the person” thinks you may be interested in the content of this site: (the link). Please feel free to have a look and join the community. (Contact Info) + (Personal message).

- *Thesis:*
  - I am wondering if is going to be possible to separate the content here by chapters and subchapters.
  - Members should be able to make comments by subchapters, and also everyone should be able to make likes. Are these red and green buttons the same than likes? Is it possible to unlike?
- *Time line:*
  - In general the time-line I like. There are few things to edit there. It would be also useful to redirect to some wider explanation of each block. At the moment it highlights the text but after clicking does not redirect. I guess this is work I can make in the following days.



- *Library:*

- As user I should be able to upload information.
- I tried the like button but it did not work.
- I tried to make a comment and I got the following message and the same when continue:  
Parse error: syntax error, unexpected T\_STRING  
in /home/nanoinfo/public\_html/thesis/v2/librarydetail.php on line 78

- *Forums:*

- The functions seem to work. It should be possible to make comments over comments. Otherwise it is not possible to make discussion.
- One question. How can I start a new forum as a member? Members should be able to start new discussions.

- *You:*

- Where the “like” button is. I mean to like certain member.
- Also notifications are missing. Please see Thesis-Site\_Further-Details document.

- *Wiki-Cases:*

- The ideas should be shared via the website, not facebook. Or is the people automatically becoming members because they have facebook account?
- In the wikicase we should leave it as a discussion-forum. The same than with the budget. I have developed also a wiki in collaboration with the university and I am planning to share it here. This area should be editable.  
We have to change the “Font-Sizes”. Way too small in many cases. Also the spacing seems rather long in some cases. Information has to be presented in chunks and give cohesion. At the moment it is not easy to follow the content for instance in the case of “You” area. For instance the questions-answer area which is the part that shows the first, it should be an editable form, at the moment they are editable questions. No cohesion.

### **BACK-END**

Regarding the back end perhaps best would be to get a manual from you with details how to use it.

- *Masters*

- In Countries seems not be enable. It is not very clear to me how this works.
- In Currencies I understand could help in the future for the administration of donatives.
- In Mermbers I went to check the content of your user. I could not see the photo. In enquiry I see it is possible to access further data of the user.
- In Category I could not understand how this is supposed to work. I could not find any reference in the Front-End side.

- *Website Management*

- Time line is clear.

- In Library I see there are some root-categories. These categories come from previous Category area right? I have tried to make new Library heading and I got the following message: Insert into library (LibraryID, CategoryID, LibraryHeading , Image , ShortDesc , DetailDesc , IsEnable , NOC , DateAdded, DateUpdated) Values(3, '2', 'The power of the crowd', '', 'Feel free to upload anything that resembles this heading.', '', 1, '0', '2012-08-11 06:48:47', '2012-08-11 06:48:47')
- I do not understand how the cloud and relation-cloud are related with the front-end. I also wonder if they are somehow interrelated.
- *Thesis management* is where I am going to upload the content of the thesis. This part seems clear. With the “add” I will be able to create new chapters right?
- *Visitor’s data*
- In Forum seems clear the structure but I have two questions here.
  - Is it possible to see who has created the discussion somewhere?
  - How to see what the most relevant content in the discussion is? I mean liked comments for instance.
- Enquiry seems redundant with Masters-Members-Enquiry.
- *Settings*
- In Websites seems to be the main information about the site in there. I update the budget page and it seems to be working rather well. How to change the slogan of the page? This “Implementation of crowdsourcing practices to find experts and enhance partners’ collaboration in word-class innovation” statement. In this same area I have updated Twitter information but when I went back to the front-end did not redirected me to the twitter site but instead was telling me to share in my twitter; this should not be the case.
- Change password is only for the administration?  
I am having one week off from work to put my entire attention to this project. This also means we can meet and have conference call at any time if need it. This has to go alive in the following week. We cannot afford more time.  
Please your comments/questions.

**August 15th, 2012**

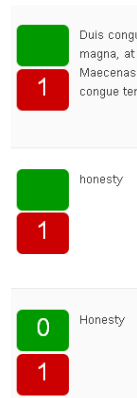
**REVIEW 2**

**FRONT-END**

- *Home*: seems okidoki.
- *Invitation form*: I tried again the invitation form. I think the following items are still open:
  - Still does not confirm that invitation has been sent. “Your invitation has been sent. Thank you!”
  - This time I have sent the invitation to my hotmail, but the invitation went to junk-inbox. How to avoid this? My hotmail account it is not configurated to reject anything. “Hi dear” does not work Jay. We have to put something like Dear or Hello at least. What happened with the static-text I sent you? Where is going to be used the static-text referring to the invitation? I think this has to be updated anyway.

- *Thesis:*

- I am wondering if it is going to be possible to separate the content here by chapters and subchapters.
- Members should be able to make comments by subchapters, and also everyone should be able to make likes.
- Regarding like and dislike buttons:
  - People can only either like or dislike something once.
  - It is not possible to like and dislike something at the same time.
  - In case someone clicks the wrong button these options should be editable, in other words a user can change from like to dislike and the other way around whenever.
  - It looks like after clicking the system does not update. It just shows the box with the color and not the number.



- I have tried to make new comment and the option for making new-comment shows but just after half a second disappears. So it is not possible to make new comment. Somehow it looks the comment-function it is kind of messed up.
- *Time line:* seems okidoki.
- *Library:* still not clear how to upload information. Now the like button works though.
- As user I should be able to upload information.
- I tried the like button but it did not work.
- *Forums:*
  - The functions seem to work. It should be possible to make comments over comments. Otherwise it is not possible to make discussion.
  - One question. How can I start a new forum as a member? Members should be able to start new discussions.
- *You:*
  - Also notifications are missing. Please see Thesis-Site\_Further-Details document.
- *Wiki-Cases:*

- The ideas should be shared via the website, not facebook. Or is the people automatically becoming members because they have facebook account?
- In the wikicase we should leave it as a discussion-forum. The same than with the budget. I have developed also a wiki in collaboration with the university and I am planning to share it here. This area should be editable.

We have to change the “Font-Sizes”. Way too small in many cases. Also the spacing seems rather long in some cases. Information has to be presented in chunks and give cohesion. At the moment it is not easy to follow the content for instance in the case of “You” area. For instance the questions-answer area which is the part that shows the first, it should be an editable form, at the moment they are editable questions. No cohesion.

### **BACK-END**

Regarding the back end perhaps best would be to get a manual from you with details how to use it.

#### *- Masters*

- Countries: clear.
- Currencies: clear.
- Mermbers: I went to check the content of your user. I could not see the photo. In enquiry I see it is possible to access further data of the user.
- In Category: I have added new category called “Human Resources” but I could not see where this is suppose to show in the front-end.

#### *- Website Management*

- Time line: clear.
- Library: now I think it is possible to make categories but I do not know how to relate them with the front-end.
- Cloud: clear.
- Relation-cloud: just to make sure, is the relation cloud will browse the relations automatically right?

#### *- Thesis management* How can I create new chapters and subchapters?

#### *- Visitor’s data*

- In Forum seems clear the structure but I have two questions here.
  - Is it possible to see who has created the discussion somewhere?
  - How to see what the most relevant content in the discussion is? I mean most-liked comments for instance.
- Enquiry seems redundant with Masters-Members-Enquiry. Or what the difference is?

#### *- Settings*

- Change password is only for the administration?
- How to change invitation, message above the search bar and add additional images from sponsors and university in the home page?

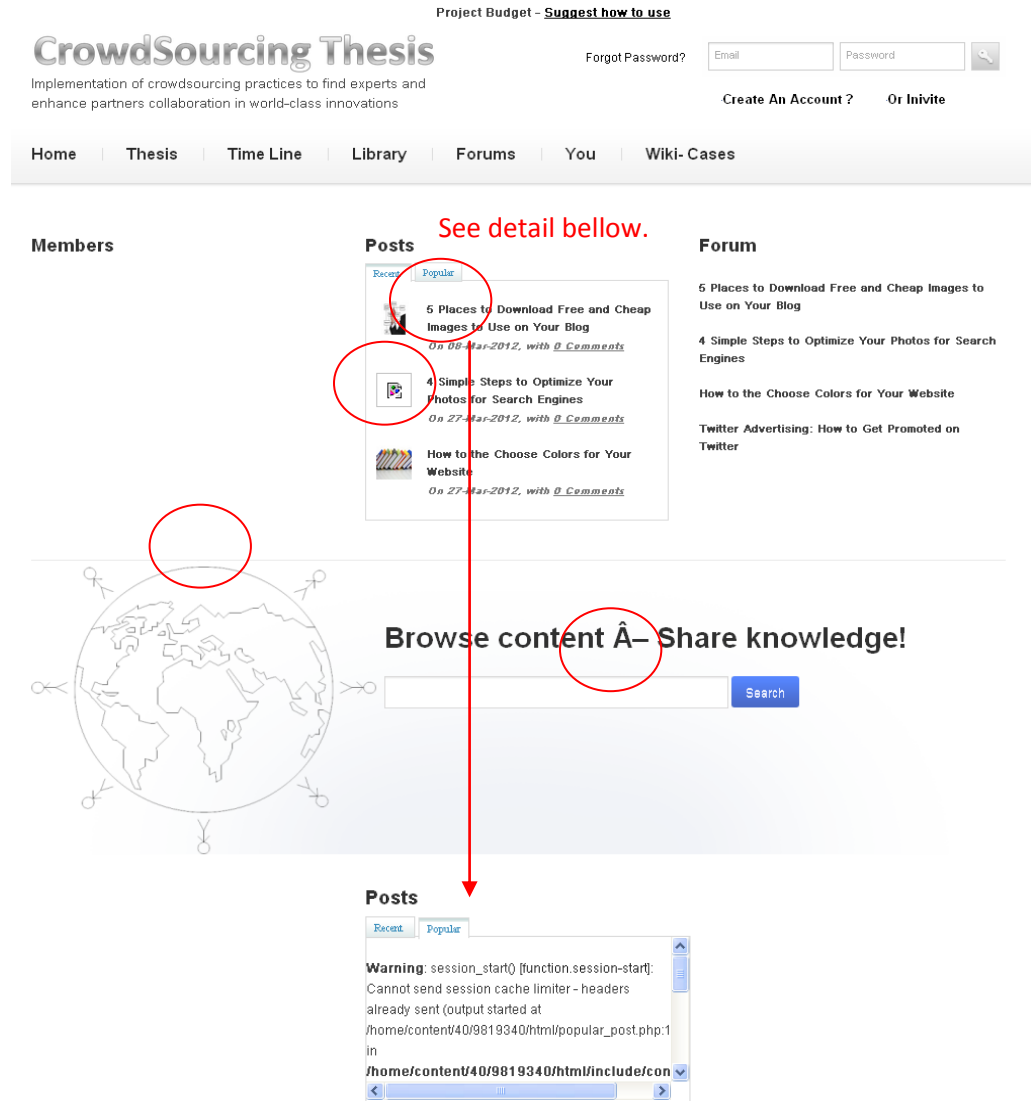
Please your comments/questions.

September 4th, 2012

### REVIEW 3

#### FRONT-END

- *Home*: There are some characters that are not been displayed. These un-displayed items include correlation and word maps.



- *Invitation form*:
  - o Email from\* → It is not clear if person should put email address or name. The message in the red-circle below should be highlighted and composed correctly. Please change it to red-fonts with following text "Please enter a valid email address". The same case in red-font all messages when something is incorrect; otherwise it is difficult to follow.

Please enter valid your email

### Invite someone you think could contribute or profit the content on this site

Invite through Email of your friend

Email: \*

Email From: \*

Message: \*

Enter the Code: \*

Invite through ...

- When sending the message “Your invitation has been sent. Thank you!” should be displayed in green-fonts. In the same way all confirmations should be displayed in green-fonts. The same reason than above.
- The invitation message is still incorrect. “The sender” should be the email of the person sending, preferably his/her name, though there is no space for name in the invitation form. In any case it is important who send the invitation. Invitation message should be seen as follows:

*“The name of the sender” (in the following case me)*

Hello,

[Manuel Velazquez](http://crowdsourcingthesis.com) thinks you may be interested in the content of <http://crowdsourcingthesis.com> Please feel free to visit and sign up to participate. Thank you!

Sincerely yours,

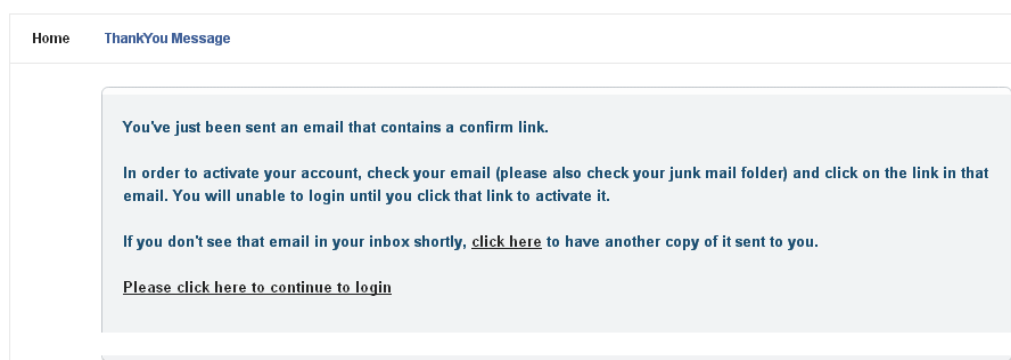
CrowdSourcing Thesis

Site Moderator: [Manuel Velazquez](#)

Perhaps it would be possible to make a hyperlink to the name of the sender with his/her email. The link of the site moderator (me) should redirect to my profile in the website. There was also a warning-message from firewall. Do you think is possible to avoid this? Please see bellow. This problem might be happening because the link actually redirects to <http://nanoinfotechnology.com/>



- For branding purposes it would be beneficial to include the logo of the site in the email message. This creates brand.
- *Create an account:*
- *The registration seems to be working properly except for the route it takes after. Please note the subscriber should answer the questionnaire before becoming a member. These questions have to be displayed, and only after answering them and giving basic information send those to me for approval. The message bellow has to be changed and instead display the basic information and questions.*



From document “Thesis-Site\_Further-Details” (PDF) → whenever a new-user wants to join the site a form with some questions should be displayed. I should give the questions later in the process. These questions together with the answer should be displayed in the profile of a particular member as a default. Members are able to edit their profile at any time. **IMPORTANT NOTE: The membership of a new user would be only granted by me.** Please see appendix 5. Also please see document “questions” (PDF). One general thing is that the forums and all pre-establish things should be erased. After fixing the problems with the sign-up, we can continue the discussions in the forums. Maybe we can open a forum called “Site-enhancement” or something like that, so users can report failures, suggest improvements and in general feedback.

At this point the most important thing is to fix the signing-up process and make sure that profiling (read “YOU”) is working properly. The problem now is that we cannot sign up according to the process described before. This is crucial filter.

The Project Budget - Suggest how to use part should be changed as well. Perhaps I can focus in the things regarding “content” and you can deal with the “technical” matters regarding the structure and processes.

- *Thesis:*
- *Time line:* seems okidoki.
- *Library:* still not clear how to upload information. Now the like button works though.
  - o As user I should be able to upload information.
  - o I tried the like button but it did not work.
- *Forums:*
  - o The functions seem to work. It should be possible to make comments over comments. Otherwise it is not possible to make discussion.
  - o Members should be able to start new discussions.
- *You:*
  - o Notifications are missing. Please see Thesis-Site\_Further-Details document.
- *Wiki-Cases:*
  - o In the wikicase we should leave it as a discussion-forum. The same than with the budget. I have developed also a wiki in collaboration with the university and I am planning to share it here. This area should be editable.

We have to change the “Font-Sizes”. Way too small in many cases. Also the spacing seems rather long in some cases. Information has to be presented in chunks and give cohesion. At the moment it is not easy to follow the content for instance in the case of “You” area. For instance the questions-answer area which is the part that shows the first, it should be an editable form, at the moment they are editable questions. No cohesion.

#### **BACK-END**

It is also important to make sure that the back-end is working properly. One question regarding the back-end: how can I access to back-end now?

- *Masters*
- *Website Management*
- *Thesis management*
- *Visitor’s data*
- *Settings*

Please your comments/questions.



September 6th, 2012

## REVIEW 4

### FRONT-END

- *Home:* There are some characters that are not been displayed. These un-displayed items include correlation and word maps.

Project Budget - [Suggest how to use](#)

# CrowdSourcing Thesis

Implementation of crowdsourcing practices to find experts and enhance partners collaboration in world-class innovations

Forgot Password?   


[Create An Account ?](#) [Or Invite](#)

[Home](#) | [Thesis](#) | [Time Line](#) | [Library](#) | [Forums](#) | [You](#) | [Wiki- Cases](#)


#### Members

#### Posts


[Recent](#) [Popular](#)



5 Places to Download Free and Cheap Images to Use on Your Blog  
On 08-Mar-2012, with 0 Comments



4 Simple Steps to Optimize Your Photos for Search Engines  
On 27-Mar-2012, with 0 Comments



How to the Choose Colors for Your Website  
On 27-Mar-2012, with 0 Comments

#### Forum

5 Places to Download Free and Cheap Images to Use on Your Blog

4 Simple Steps to Optimize Your Photos for Search Engines

How to the Choose Colors for Your Website


Twitter Advertising: How to Get Promoted on Twitter



### Browse content - Share knowledge!

- *Invitation form:*
  - o The invitation message is still incorrect. Perhaps is better you tell me how can I change this as it seems hard for you to stitch with the instructions. It is not “**Dear**” it is supposed to be “Hello”. The message does not necessarily comes from a friend so the line “**One of you friend invited to joining his network on**” I have no idea from where is it coming from. Please also the grammar is very important in all cases. The same case with “**Create your profile here** “. The site moderator is missing and the logo does not show.

**Inbox: CrowdSourcing Thesis Invite (5099 of 5099)** 

Mark as:  Move Copy This message to

Delete Reply Forward Redirect View Thread Blacklist Whitelist Message Source Save as Print Headers v

**Date:** Thu, 6 Sep 2012 00:51:39 -0700 [10:51:39 AM EEST]  
**From:** CrowdSourcing Thesis <info@crowdsourcingthesis.com>  
**To:** manuel.velazquez@tut.fi  
**Subject:** CrowdSourcing Thesis Invite

Show this HTML in a new window?

Dear

**One of your friend invited to joining his network on CrowdSourcing Thesis**

manuel.velazquez@tut.fi thinks you may be interested in the content of [CrowdSourcing Thesis](#). Please feel free to visit and sign up to participate  
 Create your profile here.

Thank you!

Sincerely yours

CrowdSourcing Thesis



Hello,

[Mritunjay Kumar](#) thinks you may be interested in the content of  
<http://crowdsourcingthesis.com>

Please feel free to visit and sign up to participate.

Thank you!

Sincerely yours,

CrowdSourcing Thesis

[Site Moderator](#)

Perhaps it would be possible to make a hyperlink to the name of the sender with his/her email.  
 The link of the site moderator (me) should redirect to my profile in the website.

I would like to create my profile with the email from university. But the Sign up form says that  
 the email is already registered. I have not done this:

Email Address Already Register

### Sign Up for CrowdSourcing Thesis

Create a new account...


Email Address: \*

Password: \*


Retype Password: \*

DOB: \*

Enter the Code: \*

 07b96b

Sign Up for Your Account

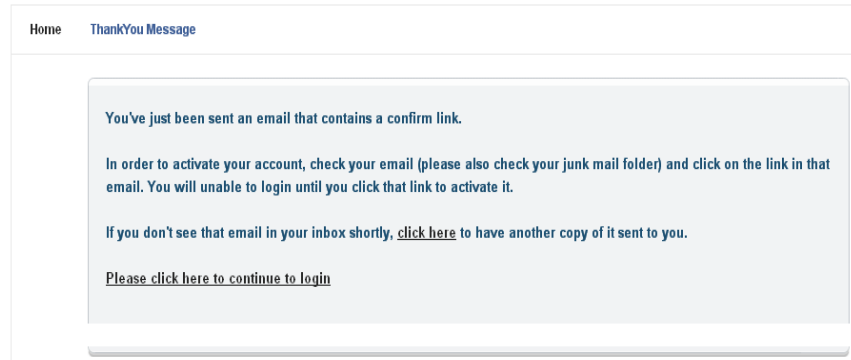
 Facebook

Could you please advice?

- *Create an account:*
  - **THIS HAS TO GET THE HIGHEST PRIORITY AT THE MOMENT. WITHOUT FIXING THE ROUTE FOR SUBSCRIPTION (create an account) IT WONT BE POSSIBLE TO START SENDING INVITATIONS. PLEASE JAY WE CANNOT AFFORD MORE DELAYS.**
  - *When creating an account subscriber should fill basic information, upload photo, and answer the questionnaire before getting any email. Then after filling in all this information, user should confirm to send this information for approval or erase it. If the person confirms a message saying that "the application has been sent" has to be displayed. Then I get the information for approval. If the person does not confirm the information is erased.*

*I am the one who determines if the information is truthful and reliable. In other words, depending the answers, the person will be granted membership or not. Did you ever see the route from <http://businessmodelhub.com/> or not? It seems that you have not.*

*The message bellow has to be changed and instead display the basic information, photo upload, questions forms, followed by confirmation process.*



After I approve, then the user gets email with welcoming message, username and password:

### Welcome message

Welcome to CrowdSourcing-Thesis site!

This site forms part of Master of Science Thesis called “IMPLEMENTATION OF CROWDSOURCING PRACTICES TO FIND EXPERTS AND ENHANCE PARTNERS COLLABORATION IN WORLD CLASS INNOVATIONS” in collaboration with Tampere University of Technology, and The Baltic Institute of Finland. The site has been created to serve as the public-space to share the Thesis-work, and hopefully also as the way to complement it with the contributions from the site-members that like YOU, have kindly joined.

All comments are more than welcome. All participants are kindly invited to actively participate in the content of the Thesis and open forums and discussions regarding CrowdSourcing and/or related topics. Adjacently the page will help to confirm and find challenges and advantages when a project attempts to get contributions from an online-community.

Members that sign up before Novermbet 10<sup>th</sup> 2012 will be quoted in the final report. This is a non-profit project with plenty of room for improvement in both the site (from code-bugs to architecture) and the thesis (from misspelled words to random/unstructured thoughts). Yet, the project has 100€ budget that has been granted by The Baltic Institute of Finland. It has been difficult to determine how to use this money. It was originally thought that this money could be used for gifts-certificates (e.g. Amazon) for the most active members; but perhaps it would be best to let the community decide how to use these funds.

Thesis delivery-deadline is October 25<sup>th</sup> 2012. Please be an active-part of CrowdSourcing-Thesis, invite people to participate, and share-or-take ideas around this cutting-edge subject. Thank you.

Yours faithfully,

**Manuel Velazquez**  
Site moderator

The first applications will derivate from my invitations and most probably all people will get membership. Later while we grow this tools becomes elementary.

From document “Thesis-Site Further-Details” (PDF) → whenever a new-user wants to join the site a form with some questions should be displayed. I should give the questions later in the process. These questions together with the answer should be displayed in the profile of a particular member as a default. Members are able to edit their profile at any time. **IMPORTANT NOTE: The membership of a new user would be only granted by me**. Please see appendix 5. Also please see document “questions” (PDF).

The following text is ok but it comes at the wrong time. Also as you may have noticed the welcome message has changed. I think the biggest mistake in the route is that I am the one who actives the account after reviewing the answers and basic information.

Welcome [manuel.perruzo@gmail.com](mailto:manuel.perruzo@gmail.com) to CrowdSourcing-Thesis site!

Let's quickly do the essential stuff. Your username is [manuel.perruzo@gmail.com](mailto:manuel.perruzo@gmail.com) and your password is A00771809 .

This site forms part of Master of Science Thesis called “IMPLEMENTATION OF CROWDSOURCING PRACTICES TO FIND EXPERTS AND ENHANCE PARTNERS COLLABORATION IN WORLD CLASS INNOVATIONS” in collaboration with [Tampere University](#) of Technology, and [The Baltic Institute](#) of Finland. All comments around the subject are more than welcome, and all participants are kindly invited to actively participate in the content of the Thesis. The main aim of the Thesis is to create a tool able to get contributions from the crowd in order to confirm advantages and find challenges when a project it is being CrowdSourced.

The 5 ost active-contributors will be quoted in the final report and receive a special-gift that would be selected by the very crowd itself. This is a non-for-profit project with plenty of room for improvement in both the site and the thesis. Yet, the project has a 250€ budget that has been granted by [The Baltic Institute](#) of Finland for the gifts to the 5 most active-contributors.

Thesis delivery-deadline is October 31st 2012. Please be part of CrowdSourcing-Thesis, invite people to participate, and share your knowledge and ideas around this cutting-edge subject. Thank you.

But we suggest you to click here straight to [Activate](#) your account and [LOG IN](#) right now!

Yours faithfully,

CrowdSourcing-Thesis

Site moderator: [Manuel Velazquez](#).

- *Thesis:*
- *Time line:* seems okidoki.
- *Library:* still not clear how to upload information. Now the like button works though.
  - o As user I should be able to upload information.
  - o I tried the like button but it did not work.
- *Forums:*
  - o The functions seem to work. It should be possible to make comments over comments. Otherwise it is not possible to make discussion.
  - o Members should be able to start new discussions.

- *You:*
  - o Notifications are missing. Please see Thesis-Site\_Further-Details document.
- *Wiki-Cases:*
  - o In the wikicase we should leave it as a discussion-forum. The same than with the budget. I have developed also a wiki in collaboration with the university and I am planning to share it here. This area should be editable.

One general thing is that the forums and **all pre-establish** things should be erased. SO FAR THEY ARE STILL SHOWING THINGS THAT DO NOT CORRESPOND WITH THE CONTENT OF THE SITE.

After fixing the problems with the sign-up we can continue the discussions in the forums. I will suggest you to open a forum called "Site-enhancement" or something like that, so we can continue these discussions there and users can report failures, suggest improvements and in general give their feedback.

At this point the most important thing is to fix the signing-up process and make sure that profiling (read "YOU") is working properly. The problem now is that we cannot sign up according to the process described before. **This is crucial filter.**

The Project Budget - Suggest how to use part should be changed as well. Perhaps I can focus in the things regarding "content" and you can deal with the "technical" matters regarding the structure and processes.

We have to change the "Font-Sizes". Way too small in many cases. Also the spacing seems rather long in some cases. Information has to be presented in chunks and give cohesion. At the moment it is not easy to follow the content for instance in the case of "You" area. For instance the questions-answer area which is the part that shows the first, it should be an editable form, at the moment they are editable questions. No cohesion.

### **BACK-END**

#### **HOW TO ACCES THE BACK-END NOW?**

It is also important to make sure that the back-end is working properly. One question regarding the back-end: how can I access to back-end now?

- *Masters*
- *Website Management*
- *Thesis management*
- *Visitor's data*
- *Settings*

Please your comments/questions.

September 30th, 2012

## REVIEW 5

### Case by bullet

- Is still possible to unlike when not signed in.
- Fix “You are in: unknown country”. The function should display country from where user has signed in last time. For instance if member signs in USA and go to his/her profile (“You”) then page should say “You are in: USA”. When other user goes to visit a member page should display “Last Signed: USA”

You are In (Unknown Country?)

- Create profile DOB > 1960 not possible.

**Create Profile on CrowdSourcing Thesis**

Full Name\*:

DOB: \*  Day  Month  Year

Upload Picture: \*  No file chosen

What's your URL?

Gender: ☐ Male ☐ Female

What industry do you mainly work in (e.g. financial services, telco, utilities, public sector, pharma...)? \*

What is the size of the organization you work for? \*

What makes you passionate about collective intelligence? \*

- The messaging options within members should work internally with users-profiles. This is crucial to clarify things in a private manner if need it. For instance I want to send a message to Luis and ask him further details regarding some of the things he put in his profile but at this moment it is neither possible nor clear how to do this. It should be possible to send private messages to other members

Activity Profile Friends 0 Pre-Form 0 You are In (Unknown Country?)

Inbox Sent Compose

**Manuel Velazquez**  
[Testing messaging](#)  
 Test

30-Sep-12

Activity Profile Friends 0 Pre-Form 0 You are In (Unknown Country?)

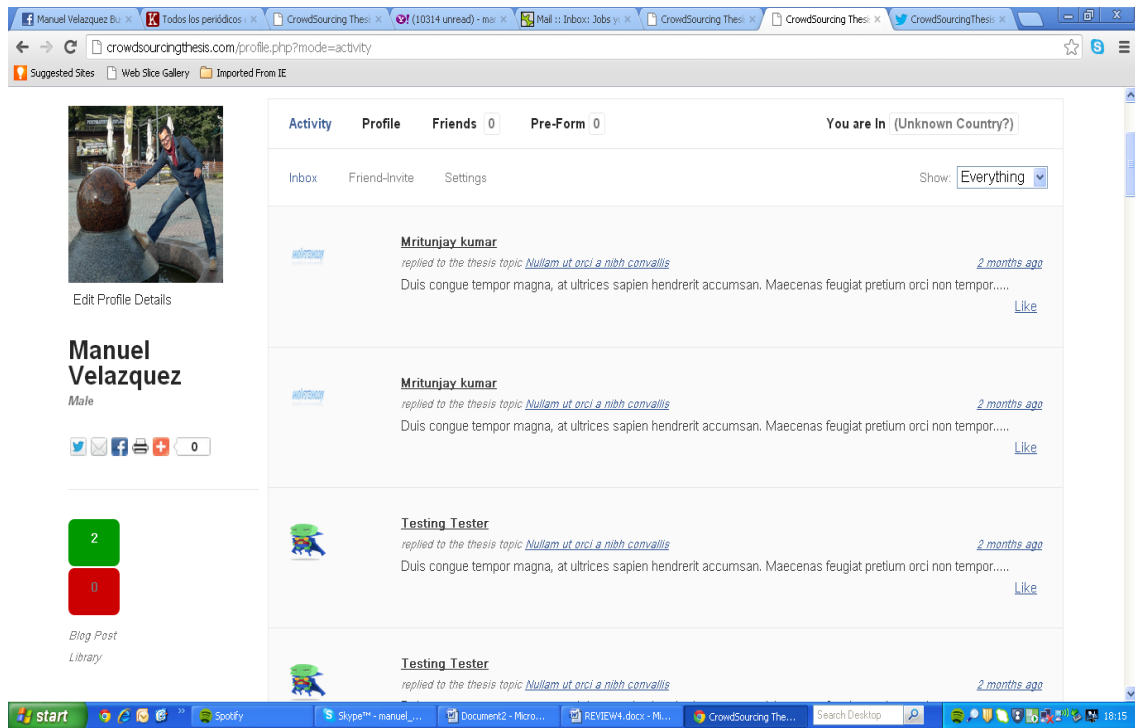
**Compose Message**

Email Address:

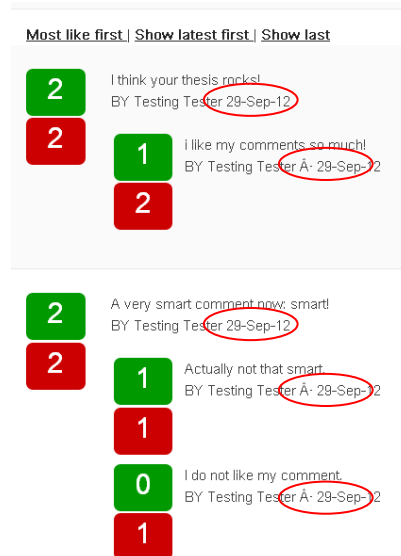
Subject:

Message:

- Activity option in “You” is not representative please check.

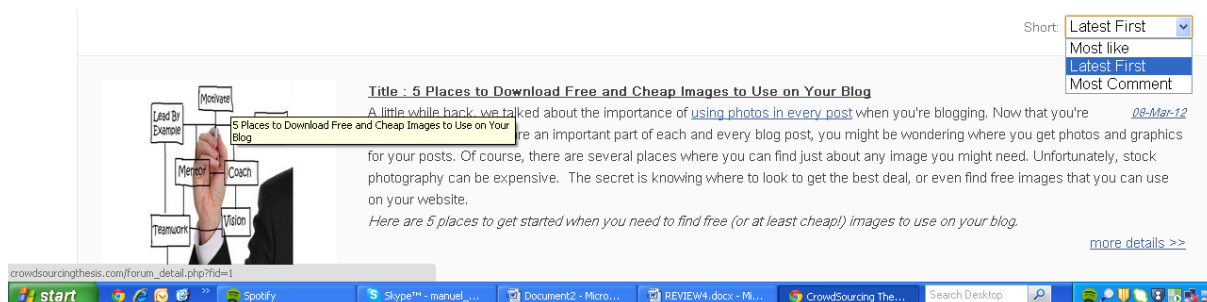


- Display the photo of the member commenting or a link to redirect to his/her profile



- The shorting option is meant to find most activity in the page. At the moment shorting option is not working in within forums.



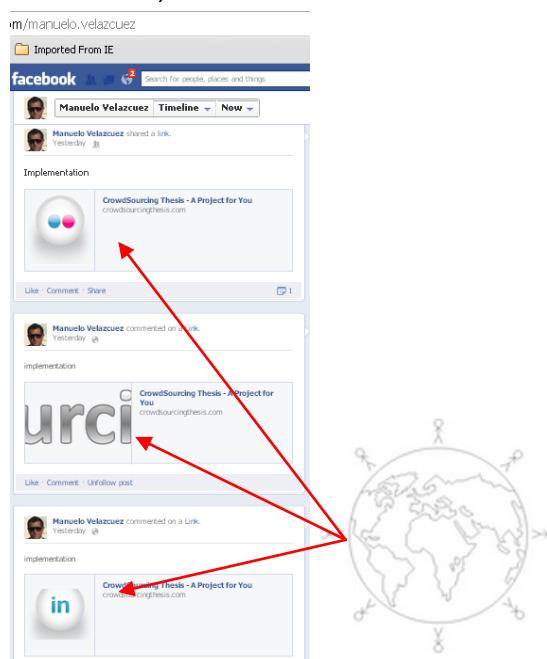


- The search engine should search in the whole page not only in forums. The search engine should search in comments, the main document (thesis), files in library, profiles, and forums.

## Browse content - Share knowledge!

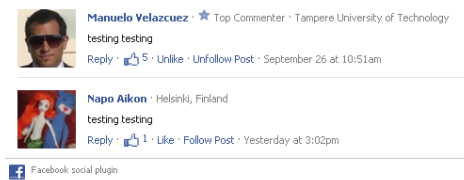
 

- Files are not shown in the library. The idea of the library is that members can upload documents, photos and in general information related with the topic. They can also consult information in the library.
- Log in the comments of facebook; instead of the ones from linked in, twitter and flicker.

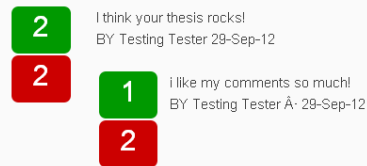


flicker.

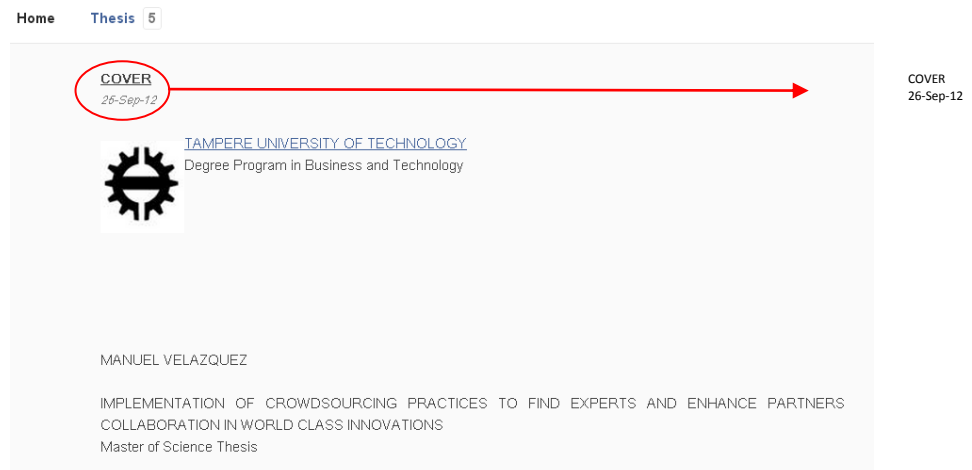
- Show both comments coming from facebook and members.



[Most like first](#) | [Show latest first](#) | [Show last](#)



- Welcome message has to be updated. Create easier way to update welcome message. provide a section in the back end where this can be updated more easily.
- Main document “Thesis” reduce the fonts of root category and date. Align them to the top right side. Drop down chapter.



- For instance if user makes a comment in the “Abstract” of the main document “Thesis”; comment should stay in the “Abstract” page and also view of user should stay in same page. At the moment sends the comment to the “Cover” and changes the view to the cover.
- Word map
- Correlation map

**October 10th, 2012**

**REVIEW 7**

**Case by case**

1. Most critical issue is the order of the information in "Thesis". Content should be displayed in the right sequence and so far this is not the case. Cover, Preface, Abstract, Table of Contents, and so on.
2. Drop box for library in order to search items by category. It might be that we are having a misunderstanding with the term drop box, when I say drop box I mean a cascade-menu that would show the different options. Like the one we have to search for most-popular, newest and so on. You can redirect to Appendix 8 of document Thesis-Site\_Further-Details.pdf. This drop-box/cascade-menu is meant to make easier the navigation. At the beginning would be enough if the menu separates photos and documents; but we can also think in how to present by different content. Please NOTE browsing engine should be able to read inside documents. Perhaps a good solution for this case would be to make two categories, one for documents where the logo of the site will be presented as a default and one for images where the image has to be uploaded and displayed in the library.
  - a. One question regarding the library. What if a user uploads the wrong file or wants to update a current one? Can this be done? If yes, how? If not, we have to give this option in library. Also in the profile "You" there should be a way to identified any contributions from the member to the library.
3. All content should be available for everyone even though they are not members. This includes browsing options and description of library items. In other words users should be able to see what is available and the description of the file. They should also be able to download the documentation but not upload unless they are users. We should be able to track down if visitors download files from the library.
4. Erasing options have to be developed. At this point we are going alive without them but these options should make easier the cultivation and protection of the site. In this same line one question.
5. Welcoming message editable from back-end.
6. Please double check that all the commenting options are running flawlessly. Comments over comments too.
7. "You are in" option only when in my profile "You". "Last log" when in the profile of other member "You". Also in "You" activity should be representative and it should be

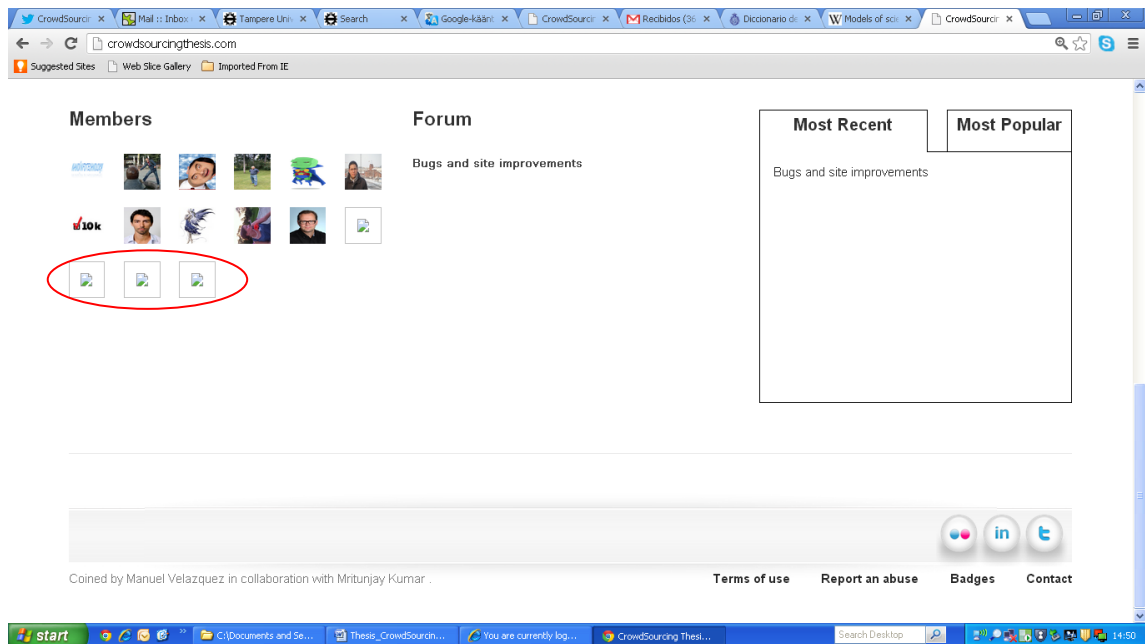
possible to apply browsing filters. In other words activity should make a summary also by relevance.

#### 8. Logo for facebook and other sites.



#### 9. We have to check relation map.

Please confirm maintenance agreement: 0,02€/member



**Appendix 4:** Marketing campaign last week of October 2012. Looking participation and collaboration for <http://crowdsourcingthesis.com> in existing network and forums: Facebook, LinkedIn and Twitter.

- CrowdSourcing & CrowdFunding - LinkedIn

www.linkedin.com/groups?displayMySubmitted=&gid=3185331&goback=%2Egmp\_3185331

Account Type: Basic | Upgrade

Manuel Velazquez

Home Profile Contacts Groups Jobs Inbox Companies News More

The future is here! - Visma.net is cloud based solution for Financial Management. Book a demo.

**crowdsourcing** CrowdSourcing & CrowdFunding

Discussions Members Promotions Search More... Share group |

**Member**

Recent Updates

Discussions You've Started

Discussions You've Joined

Discussions You're Following

Pending Submissions

**Manuel Velazquez** Experts in CrowdSourcing, please help in thesis writing process!

Visit the page, sign up, and share your views. Everyone who joins will be quoted in the final document as PDF copy when thesis gets accepted. Thank you!

Please help writing this thesis! Help can come from pointing out... crowdsourcingthesis.com

Information technologies have allowed an endless exchange of information. The trend seems to be exp towards a more controlled network in which is possible to identify and validate sources of information; fu to upgrade and locate human...

7 seconds ago • Delete • Edit 14 minutes left

- CrowdSourcing Network - LinkedIn

www.linkedin.com/groups/Crowdsourcing-Network-30872977trik=myg\_ugrp\_ovr

Account Type: Basic | Upgrade

Manuel Velazquez

Home Profile Contacts Groups Jobs Inbox Companies News More

**Crowdsourcing Network**

Discussions Members Promotions Jobs Search More...

**Start:** Discussion Poll

Start a discussion or share something with the group...

Your Activity

Choose Your View **NEW** Show all RSS discussions

**CrowdSourcing experts for Global Innovations.** • 2 minutes ago

Visit the page, sign up, and share your views. Everyone who joins...

Please help writing this thesis! Help can come from pointing out...

Like Comment Flag More

- Crowdfunding News - Twitter

The screenshot shows the Twitter profile for Crowdfunding News (@Crowdfundnews). The profile header includes a colorful logo of hands holding money, the name 'Crowdfunding News', the handle '@Crowdfundnews', and a bio: 'News on crowdsourcing, crowdfunding and new business ideas. Reach us at crowdfundnews@hotmail.com for tips and info. http://crowdfundnews.blogspot.com/'. It also shows 30,562 tweets, 5,868 following, and 6,677 followers. Below the header is a 'Tweet to Crowdfunding News' section with a text box containing a request for help writing a thesis about Crowdsourcing at a specific URL, and a 'Tweet' button. The 'Tweets' section shows two recent tweets from the account, both featuring the same logo and discussing business ideas and Kickstarter projects.

- Crowdsourcing Asia - Twitter

The screenshot shows the Twitter profile for Crowdsourcing Asia (@CrowdAsia). The profile header includes a logo with two red horses and the text 'Ludv k Partners', the name 'Crowdsourcing Asia', the handle '@CrowdAsia', and a bio: 'COO Crowdsourcing Week Singapore · http://www.crowdsourcingweek.com'. It also shows 4,940 tweets, 1,997 following, and 785 followers. Below the header is a 'Tweet to Crowdsourcing Asia' section with a text box containing a request for help writing a thesis about Crowdsourcing at a specific URL, and a 'Tweet' button. The 'Tweets' section shows two recent tweets from the account, both featuring the same logo and discussing Facebook advertising tips and the 2012 Co-Creation Awards.

- Crowdsourcing.org - Twitter

The screenshot shows the Twitter profile of Crowdsourcing.org (@Crowdsourcing\_). The profile header includes the organization's logo, name, handle, bio ("The Industry Website -- Covering crowdfunding, open innovation, and all additional forms of crowdsourcing."), location (Los Angeles, CA), and website (http://crowdsourcing.org). It also displays statistics: 19,966 tweets, 1,161 following, and 11,627 followers. A "Following" button is visible. Below the header, there is a "Tweet to Crowdsourcing.org" section with a text input area containing a request for help writing a thesis about Crowdsourcing, a location pin icon, and a "Tweet" button. The main "Tweets" section shows two recent tweets from the account, both mentioning Google Crisis Map and providing links to related content.

- Crowd Power - Twitter

The screenshot shows the Twitter profile of Crowd Power (@PowertotheCrowd). The profile header includes the organization's logo, name, handle, bio ("Keeping you in the know with inspirational stories about crowdfunding & crowdsourcing"), and statistics: 1,614 tweets, 1,679 following, and 1,856 followers. A "Following" button is visible. Below the header, there is a "Tweet to Crowd Power" section with a text input area containing a request for help writing a thesis about Crowdsourcing, a location pin icon, and a "Tweet" button. The main "Tweets" section shows two recent tweets from the account, both mentioning crowdfunding and providing links to related content.

- TUT Business and Technology - Facebook

www.facebook.com/groups/193217340743406/?fref=ts

Suggested Sites Web Slice Gallery Imported From IE

Write something...

**TUT Business And Tec...**

BachaTie 12

ISOT - International... 20+

ESN INTO Tampere 20+

#yosoy132enelextra... 20+

Create group

PAGES

Like Pages

Create a Page...

MORE ▾

**Manuelo Velazquez**

Hello everyone, I am writing the thesis and your help is requested. I need you to go to the following page <http://crowdsourcingthesis.com/>, make a profile and put something smart. Seriously, any source-reference, concept-ideas development, finding-miss-spelled-words, love-letters, positive-destructive comments, anything is welcome and you will be quoted in the final document. This can help you also in your thesis-writing process or at least you can make fun of me. Kiitos!

**CrowdSourcing Thesis - A Project for You**  
crowdsourcingthesis.com

Unlike · Comment · Unfollow post · Share · about an hour ago

You like this. Seen by 30

BTW the page seems to be a mess. Perhaps it is easier to see the content here <http://crowdsourcingthesis.com/thesis.php?page=5&chaptid=> Just sing up please. BTW This is also being documented :D Cheers!

OLDER POSTS





## Appendix 6: Definitions of Communities

<i>Virtual Community</i>	Social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace.	Rheingold (1993, p.5)
<i>Virtual Community</i>	Group of people with common interests and practices that communicate regularly and for some duration in an organized way over the Internet through a common location or mechanism.	Ridings et al. (2002, p. 273)
<i>Online Community</i>	Interactive group of people joined together by a common interest, where the most important feature is the interaction among members.	Owyang (2008, p. 2)
<i>Online Community</i>	Voluntary collaboration among members across time and space independent of geographical barriers, with different rules from physical communities. They often exist around a single idea or topic.	Lucas (2008, p. 48-60)
<i>Knowledge Community</i>	Groups or organizations whose primary purpose is the development and promulgation of collective knowledge.	Kramer (1999, p. 50)
<i>Knowledge Community</i>	A group of people providing information related to the same subject, and the information is interpreted in a different way in accordance to the previous experiences of people receiving the information	Huff (2002, p. 144-145)
<i>Learning Communities</i>	A learning community is a cohesive community that embodies a culture of learning. Members are involved in a collective effort of understanding. It attends issues of climate, needs, resources, planning, action, and evaluation.	McConnell (2006, p. 19)
<i>Communities of Practice</i>	A group of people who come together around common interests and expertise. They create, share, and apply knowledge within and across boundaries of teams, business units, and even entire organizations - providing a concrete path toward creating a true knowledge organization.	Vat (2005, p. 827-830)
<i>Communities of Practice</i>	A group of people in an organization who are (somehow) held together by common interest in their work topic, purpose, and activities.	Disterer (2005, p. 1391-1396.)
<i>Communities of Practice</i>	A group of individuals that may be co-located or distributed, are motivated by a common set of interests, and are willing to develop and share tacit and explicit knowledge.	Coakes & Clarke (2006, p. 30-33)
<i>Customer Communities</i>	Organized system of customer contact, that allows regular interactions with customers, both in person and electronically. These interactions are for information sharing, feedback, and exchange of ideas.	O'Leary & Sheehan (2008, p.2)
<i>Community of Creation</i>	A community of practice where members mainly focus on the sharing and generation of new knowledge for the purpose of creating new ideas, practices, and artifacts (or products). They can be legitimized through involvement in a company-sponsored product development effort, or they may be informal through various practitioners, with similar experience and knowledge meeting where new innovations arise from this interaction	Paquette (2006, p. 68-73)

## Appendix 7: Google Analytics <http://crowdsourcingthesis.com>

Google Analytics

[Go to this report](#)

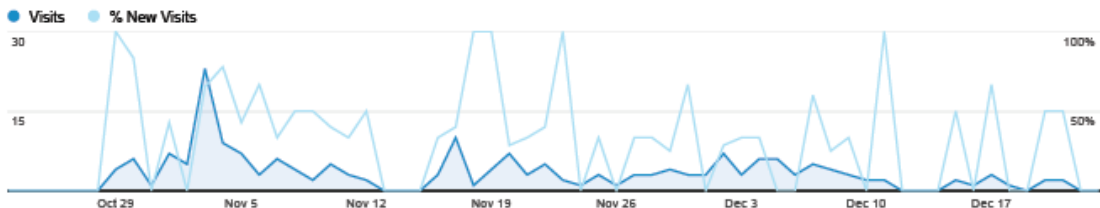
crowdsourcingthesis - <http://crowdsourcingthesis.com>  
All Web Site Data [DEFAULT]

### Audience Overview

Oct 23, 2012 - Dec 23, 2012

● % of visits: 100.00%

Overview



### 88 people visited this site

Visits  
195

Unique Visitors  
88

Pageviews  
572

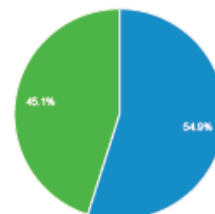
Pages / Visit  
2.93

Avg. Visit Duration  
00:02:19

Bounce Rate  
64.10%

% New Visits  
45.13%

■ Returning Visitor ■ New Visitor



Language	Visits	% Visits
1. <a href="#">en-us</a>	102	52.31%
2. <a href="#">es</a>	70	35.90%
3. <a href="#">es-es</a>	4	2.05%
4. <a href="#">fi</a>	3	1.54%
5. <a href="#">c</a>	2	1.03%
6. <a href="#">en-gb</a>	2	1.03%
7. <a href="#">es-419</a>	2	1.03%
8. <a href="#">ru</a>	2	1.03%
9. <a href="#">da</a>	1	0.51%
10. <a href="#">en</a>	1	0.51%

# Google Analytics

crowdsourcingtheis - http://crowdsourcingtheis.com  
All Web Site Data [DEFAULT]

## All Traffic

Jan 9, 2013 - Feb 8, 2013

% of visits: 100.00%

Explorer

Site Usage

Visits



Visits

58

% of Total: 100.00% (68)

Pages / Visit

1.90

Site Avg: 1.90 (0.00%)

Avg. Visit Duration

00:00:53

Site Avg: 00:00:53 (0.00%)

% New Visits

37.93%

Site Avg: 37.93% (0.00%)

Bounce Rate

84.48%

Site Avg: 84.48% (0.00%)

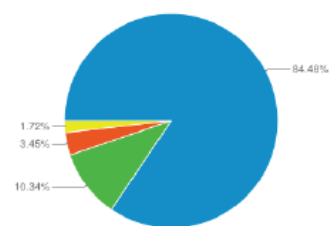
Source / Medium

Visits

Visits

Contribution to total: Visits

1. (direct) / (none)	49	84.48%
2. google / organic	6	10.34%
3. www.goo.gl/Qv87f / referral	2	3.45%
4. linkedin.com / referral	1	1.72%



## Browser & OS

Jan 9, 2013 - Feb 8, 2013

% of visits: 100.00%

Explorer

Site Usage

Visits



Visits

58

% of Total: 100.00% (68)

Pages / Visit

1.90

Site Avg: 1.90 (0.00%)

Avg. Visit Duration

00:00:53

Site Avg: 00:00:53 (0.00%)

% New Visits

37.93%

Site Avg: 37.93% (0.00%)

Bounce Rate

84.48%

Site Avg: 84.48% (0.00%)

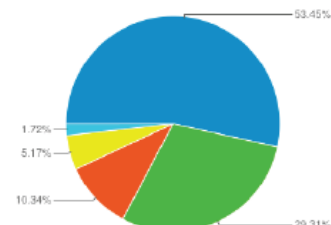
Browser

Visits

Visits

Contribution to total: Visits

1. Internet Explorer	31	53.45%
2. Chrome	17	29.31%
3. Firefox	6	10.34%
4. Safari	3	5.17%
5. Opera	1	1.72%



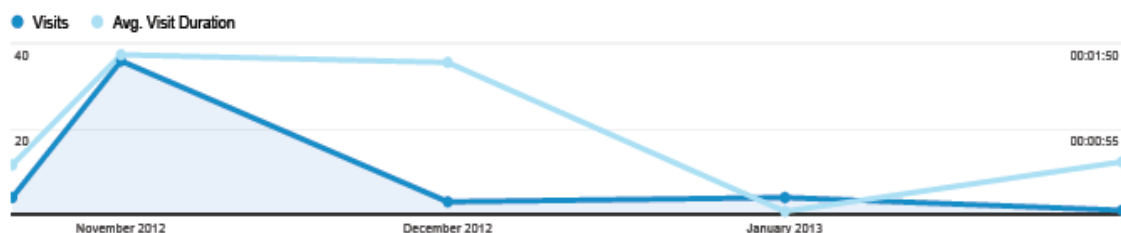
## Referral Traffic

Oct 22, 2012 - Feb 28, 2013

 % of visits: 16.44%

Explorer

Site Usage



Source	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
	48 % of Total: 16.44% (292)	4.44 Site Avg: 2.61 (77.82%)	00:01:27 Site Avg: 00:01:44 (-16.41%)	75.00% Site Avg: 46.66% (84.88%)	35.42% Site Avg: 70.66% (-48.80%)
1. facebook.com	20	5.35	00:01:42	70.00%	40.00%
2. linkedin.com	17	3.88	00:01:27	88.24%	17.65%
3. t.co	5	5.80	00:01:58	80.00%	60.00%
4. www.goog.gl/Qv87f	2	1.00	00:00:00	0.00%	100.00%
5. 36chik8dgmcd1n-c.c.yom.mail.yahoo.net	1	4.00	00:00:53	0.00%	0.00%
6. google.com	1	2.00	00:00:04	100.00%	0.00%
7. google.it	1	2.00	00:00:08	100.00%	0.00%
8. m.facebook.com	1	1.00	00:00:00	100.00%	100.00%



orowdeouringthesic - http://orowdeouringthesic.com  
All Web Site Data [DEFAULT]

## Network

Jan 9, 2013 - Feb 8, 2013

% of visits: 100.00%

Explorer

Site Usage

Visits



Visits

**58**

% of Total: 100.00% (58)

Pages / Visit

**1.90**

Site Avg: 1.90 (0.00%)

Avg. Visit Duration

**00:00:53**

Site Avg: 00:00:53 (0.00%)

% New Visits

**37.93%**

Site Avg: 37.93% (0.00%)

Bounce Rate

**84.48%**

Site Avg: 84.48% (0.00%)

Service Provider

Visits

Visits

Contribution to total: Visits

1. gesti n de direccionamiento uninet

**29**

**50.00%**

2. tampereen kaupunki

**3**

**5.17%**

3. comite gestor da internet no brasil

**2**

**3.45%**

4. elisa oyj

**2**

**3.45%**

5. inktomi corporation

**2**

**3.45%**

6. meridian telekoms inc.

**2**

**3.45%**

7. pdsn pool 8

**2**

**3.45%**

8. yahoo! inc.

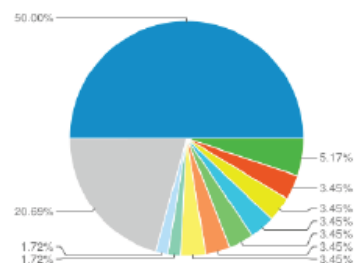
**2**

**3.45%**

9. (not set)

**1**

**1.72%**



## Engagement

Oct 22, 2012 - Feb 28, 2013

% of visits: 100.00%

Distribution

Visit Duration

Visits

**292**

% of Total: 100.00% (292)

Pageviews

**732**

% of Total: 100.00% (732)

Visit Duration	Visits	Pageviews
0-10 seconds	221	239
11-30 seconds	14	40
31-60 seconds	9	31
61-180 seconds	15	96
181-600 seconds	19	191
601-1800 seconds	7	34
1801+ seconds	7	101



crowdsourcingtheis - http://crowds...  
All Web Site Data [DEFAULT]

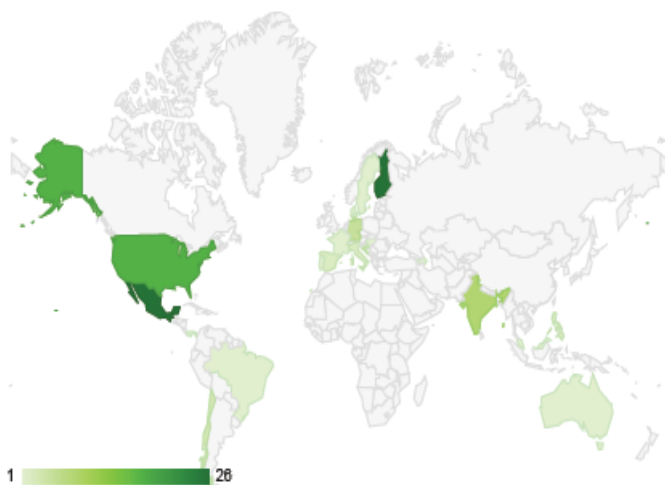
Oct 20, 2012 - Nov 19, 2012

## Location

% of visits: 100.00%

Map Overlay

Site Usage



Visits

**105**

% of Total: 100.00% (105)

Pages / Visit

**3.04**

Site Avg: 3.04 (0.00%)

Avg. Visit Duration

**00:02:11**

Site Avg: 00:02:11 (0.00%)

% New Visits

**55.24%**

Site Avg: 55.24% (0.00%)

Bounce Rate

**60.95%**

Site Avg: 60.95% (0.00%)

Country / Territory	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
1. <a href="#">Finland</a>	26	3.08	00:04:58	34.62%	46.15%
2. <a href="#">Mexico</a>	26	1.12	00:01:55	15.38%	88.48%
3. <a href="#">United States</a>	17	2.12	00:00:27	100.00%	76.47%
4. <a href="#">India</a>	8	5.62	00:01:20	50.00%	25.00%
5. <a href="#">Germany</a>	5	12.00	00:02:10	60.00%	40.00%



crowdsourcingthesis - http://crowdsourcingthesis.com  
All Web Site Data [DEFAULT]

## Pages

Jan 9, 2013 - Feb 8, 2013

● % of pageviews: 100.00%

Explorer

Site Usage

● Pageviews

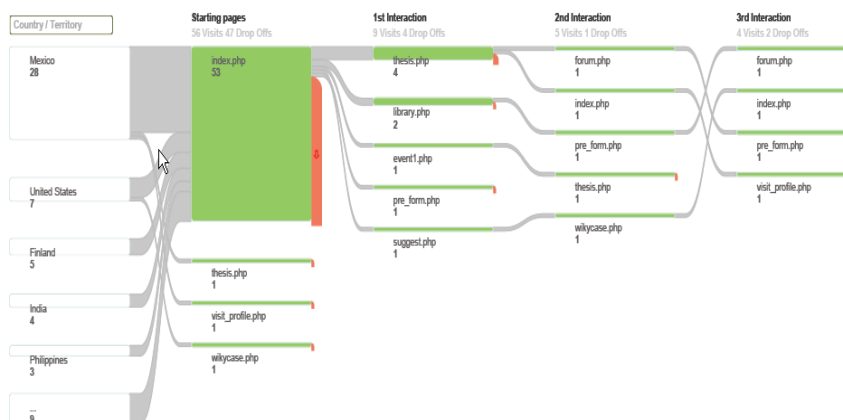


Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
<b>110</b>	<b>93</b>	<b>00:01:00</b>	<b>58</b>	<b>84.48%</b>	<b>52.73%</b>	<b>\$0.00</b>
% of Total: 100.00% (110)	% of Total: 100.00% (93)	Site Avg: 00:01:00 (0.00%)	% of Total: 100.00% (58)	Site Avg: 84.48% (0.00%)	Site Avg: 52.73% (0.00%)	% of Total: 0.00% (\$0.00)

Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
1. /index.php	57	54	00:04:03	54	85.10%	82.46%	\$0.00
2. /thesis.php	9	3	00:00:37	0	0.00%	22.22%	\$0.00
3. /pre_form.php	6	3	00:00:05	0	0.00%	16.67%	\$0.00
4. /forum.php	4	2	00:00:05	0	0.00%	0.00%	\$0.00
5. /library.php	4	3	00:00:04	0	0.00%	25.00%	\$0.00
6. /wikycase.php	4	4	00:00:23	1	100.00%	50.00%	\$0.00
7. /event1.php	3	2	00:00:10	0	0.00%	0.00%	\$0.00
8. /thesis.php?page=8&chaptid=	3	2	00:00:17	0	0.00%	0.00%	\$0.00
9. /thesis.php?page=8&chaptid=	3	3	00:00:08	1	100.00%	33.33%	\$0.00

## Visitors Flow

Jan 9, 2013 - Feb 8, 2013





**Appendix 8:** Central Desktop it is a collaboration-software to organize communities and improve communication within organizations. (<http://www.centraldesktop.com>)



### **Organize community**

Central Desktop to set up a community. Create forums and foster email-enabled community discussions.



### **Manage global teams and volunteers**

Organize volunteers or group members with Central Desktop's online calendars, task lists and discussions. Communicate event details and other important updates by sending out announcements to the entire group.



### **Manage the executive board**

Provide board members with a secure, online location to access meetings minutes, event plans and other key documents.



### **Save money on IT expenses**

Avoid the high costs of IT staff, hardware maintenance and upgrade fees associated with on-premise solutions. As a Software-as-a-Service (SaaS) solution, Central Desktop is affordable and easy to install.



### **Hold online brainstorm**

Tap into the experience of your volunteer base by using the discussion forums to brainstorm new and innovative ideas.

## Appendix 9: Hosting in Amazon

The screenshot shows a web browser displaying the AWS documentation page for 'Creating a Bucket' in Amazon S3. The browser's address bar shows the URL: `docs.amazonaws.com/AmazonS3/latest/gsg/CreatingABucket.html`. The page header includes the 'awsdocumentation' logo and the title 'Amazon Simple Storage Service Getting Started Guide (API Version 2006-03-01)'. A search bar is present with the text 'Documentation'. The main content area features a navigation pane on the left with links like 'Get Started With Amazon Simple Storage Service', 'Sign Up for Amazon S3', 'Create a Bucket', 'Add an Object to a Bucket', 'View an Object', 'Move an Object', 'Delete an Object and Bucket', 'Where Do I Go From Here?', and 'About This Guide'. The 'Create a Bucket' link is highlighted. The main content area has a breadcrumb trail: 'Sign Up for Amazon S3' → 'Create a Bucket' → 'Add an Object to a Bucket' → 'View an Object' → 'Move an Object' → 'Delete an Object and Bucket'. Below the breadcrumb trail, a paragraph states: 'Now that you've signed up for Amazon S3, you're ready to create a bucket using the AWS Management Console. Every object in Amazon S3 is stored in a bucket. Before you can store data in Amazon S3 you must create a bucket.' A 'Note' section follows, stating: 'You are not charged for creating a bucket; you are only charged for storing objects in the bucket and for transferring objects in and out of the bucket. The charges you will incur through following the examples in this guide are minimal (less than \$1). For more information, go to [Amazon S3 Pricing](#).' Below the note, a section titled 'To create a bucket' lists two steps: 1. Sign into the AWS Management Console and open the Amazon S3 console at <https://console.aws.amazon.com/s3>. 2. Click **Create Bucket**. The text 'The **Create a Bucket** dialog box appears.' is followed by a screenshot of the 'Create a Bucket - Select a Bucket Name and Region' dialog box. The dialog box has a 'Bucket Name' input field and a 'Region' dropdown menu set to 'US Standard'. The dialog box has 'Cancel' and 'Create' buttons. The bottom of the screenshot shows the Windows taskbar with open applications: 'install\_reader10\_uk\_m...exe' and 'GR-1.7.11-preview201...exe'.

## Appendix 10: After registration – Welcome Message

Username: [manuel.perruzo@gmail.com](mailto:manuel.perruzo@gmail.com)  
Password: A00771809

### Welcome Testing Tester to CrowdSourcing-Thesis site!

This site forms part of Master of Science Thesis called "IMPLEMENTATION OF CROWDSOURCING PRACTICES TO FIND EXPERTS AND ENHANCE PARTNERS COLLABORATION IN WORLD CLASS INNOVATIONS" in collaboration with [Tampere University of Technology](#), and [The Baltic Institute of Finland](#). The site has been created to serve as the public-space to share the Thesis-work, and hopefully also as the way to complement it with the contributions from the site-members that like YOU, have kindly joined.

All comments are more than welcome. All participants are kindly invited to actively participate in the content of the Thesis and open forums and discussions regarding CrowdSourcing and/or related topics. Adjacently the page will help to confirm and find challenges and advantages when a project attempts to get contributions from an online-community.

Members that sign up will be quoted in the final report. This is a non-profit project with plenty of room for improvement in both the site (from code-bugs to architecture) and the thesis (from misspelled words to random/unstructured thoughts). Yet, the project has 140€ budget that has been granted by [The Baltic Institute of Finland](#). It has been difficult to determine how to use this money. It was originally thought that this money could be used for gifts-certificates (e.g. Amazon) for the most active members; but perhaps it would be best to let the community decide how to use these funds.

Please be an active-part of CrowdSourcing-Thesis, invite people to participate, and share-obtain ideas around this cutting-edge subject. Thank you.

Please [Activate](#) your account and be welcome to [LOG IN](#) right now!

Yours faithfully,  
CrowdSourcing-Thesis  
Site moderator: [Manuel Velazquez](#).

## Appendix 11: Pamphlet

# THESIS PROJECT - CROWDSOURCING



Practical wise thesis work for the faculty of Business and Technology at Tampere University of Technology, related with major studies for Managing Technology Driven-Business in Global Markets, is attentively looking for a company partner Interested on widen its business opportunities, increase profitability, and enhance competitiveness out of its external stakeholders.

Best company candidate has or aims to have:

- Web intensive activities
- International presence
- Knowledge Intensive processes
- Technological drivers

Velazquez Manuel +358-44-931-2774  
manuel.velazquez (@) tut.fi



TAMPERE UNIVERSITY OF TECHNOLOGY

## TENTATIVE SCHEDULE

- Finding a business partner, define need, and build a proposal (February 1<sup>st</sup> – 15<sup>th</sup>)
- Kicking off! Presentation of thesis project, requirements, and central point (February 15<sup>th</sup>)
- Developing structure and bases (February 15<sup>th</sup> – March 15<sup>th</sup>)
  - ~ Provisional List of Themes ~
  - Procuring Targeted Group
  - Describing Benefits and Motivation
  - Describing Process and Expectations
  - Describing Moderation and Legal Liability
  - Setting Requirements and Usability
- Launching CrowdSourcing Process (March 15<sup>th</sup>)  
The reward package may require funding.
- Integrating, Monitoring and Moderating (March 15<sup>th</sup> – April 15<sup>th</sup>)
- Selecting Solution(s) (April 1<sup>st</sup>)
- Mashing up Feedback (April 15<sup>th</sup> – May 15<sup>th</sup>)
- Presenting Findings and Documentation (June 1<sup>st</sup>)

## Appendix 12: Examples of WordMap and ConversationMap



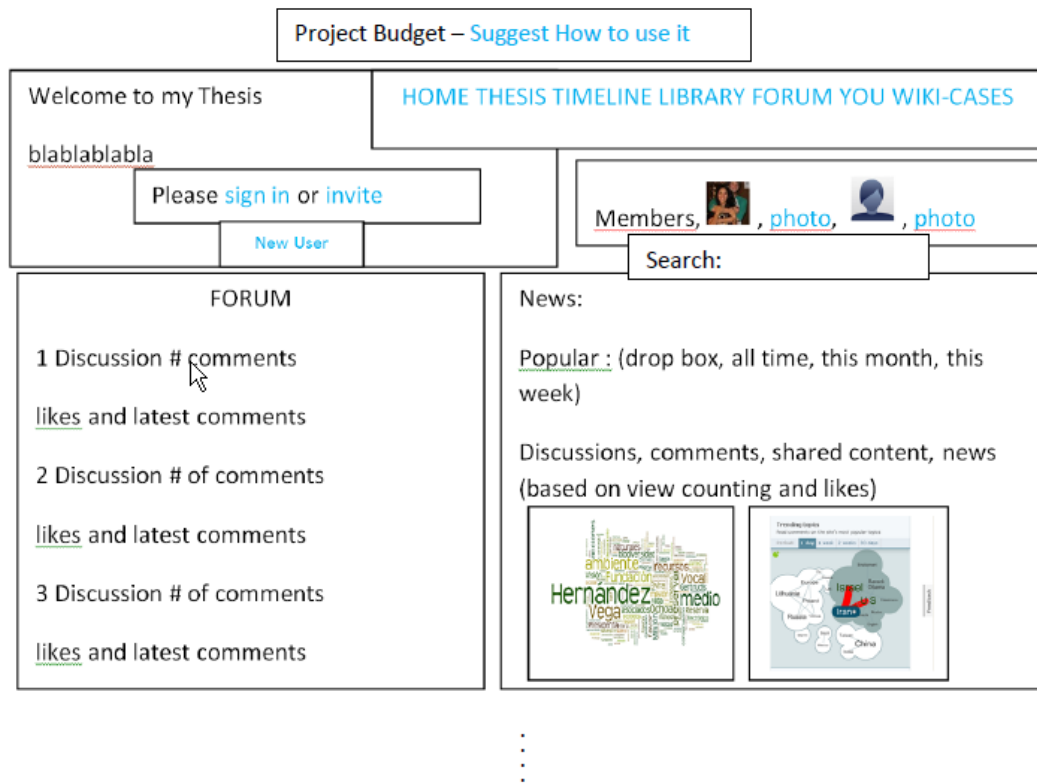
<http://www.wordle.net/>



<http://www.economist.com/conversation-cloud?days=1>

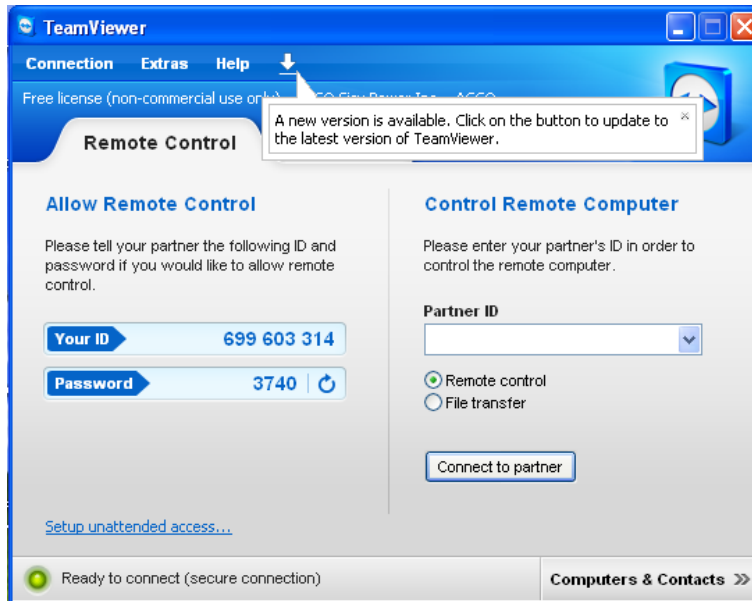
### Appendix 13: Home page view – Prototype

Home-page view.



FOOT PAGE

**Appendix 14:** TeamViewer banner. This is a useful tool for remote collaborative software testing.





**Appendix 15:** Screen-shot of <http://crowdsourcingthesis.com> before Beta Launch.

